







OFFICE,

COLONIAL BUILDINGS—44A CANNON STREET, LONDON, E.C.

For particulars of subscriptions, advertisements, &c., see the centre of the book.

As our readers are aware, the meetings of the British Pharmaceutical Conference will be held on Thursday and Friday, August 6 and 7, at 17 Bloomsbury Square. They will be preceded by a *conversazione* on the Wednesday evening, given by the Pharmaceutical Society. A dinner will take place on the Thursday evening, and an excursion on the Saturday. The London Committee has made arrangements with the Inns of Court Hotel, Holborn, so that those country members who please can go there and make it their head-quarters.

We take this opportunity of announcing that it is our intention, on August 8, to publish an extra special edition of THE CHEMIST AND DRUGGIST expressly to report the proceedings of the Conference. A copy of this issue will be sent post-free to every subscriber on our books. It will be supplied to non-subscribers at 6d. per copy, or, to gentlemen who may wish for a number for distribution, at the rate of 2l. per hundred. In that number we shall present a portrait of the President of the Conference, Mr. T. B. Groves, F.C.S., and we trust our friends will find it a comprehensive and interesting record of this important session. We shall be glad to receive a few advertisements for that number, which will be inserted at our ordinary tariff.



The Pharmaceutical Council met on the 1st inst. The first business was a letter from Mr. Giles, of Clifton, accepting the invitation to deliver the inaugural address to the students next October. There was some talk of taking the examination hall of the Law Society in Chancery Lane for the next preliminary examination, in consequence of the number of students, but the matter was referred to the House Committee. Somewhat to the surprise of some members of the Council, the question of lady pharmacists came again on the scene. Professor Atfield wrote to the effect that two ladies who had been attending the lectures were now desirous of studying in the laboratory. He (the Professor) had considered the matter, and saw no objection. He now asked if the Council was willing. Mr. Hampson urged the claims of the ladies, especially on the ground that they had been admitted to the lectures. Mr. Greenish seconded Mr. Hampson's resolution on the subject. Mr. Savage thought the influence on the young men would be good, and Mr. Owen said it was but a question of time—it must come. Messrs. Sandford, Betty, and Williams, however, objected to the motion, as they thought longer notice should have been given. Ultimately a reply was agreed upon to Professor Atfield, declining to admit lady students to the laboratory. The other party vainly endeavoured to modify that reply to a mere post-

ponement of the question. The other discussion of the day was on a motion by Mr. Hampson urging the Medical Council to admit a certain proportion of pharmacists to any committee which might be appointed for the purpose of revising the present Pharmacopœia or compiling a new one. Several members doubted the expediency of intruding upon the Medical Council at this moment, when, as Mr. Sandford believed, they are somewhat irritated at the discussions on the Appendix which have already taken place. Finally, however, the resolution was smoothed down to a sufficiently respectful tone, and was sent to the Medical Council "with the respectful compliments of the Pharmaceutical Society."

Parliament is approaching the term of its session, and seems likely to succeed in producing a good supply of work for next year. The Adulteration Act Committee has issued an excellent report, which cannot fail to form the basis of fairer legislation in this respect next year.

Sir Henry Peek writes to the *Grocer* that although it is too late for legislation this session, he hopes to be able to induce Mr. Selater-Booth to issue a circular on the subject of prosecutions, that is, we presume, with the object of practically suspending the Act until its provisions can be recast.

We direct the attention especially of export houses to a letter in our present issue from Mr. Muntz, M.P., in which he maintains his theories respecting the cheating practised in regard to drugs sent abroad.

The motion of Sir Thomas Chambers, directed against the "trading carried on by civil servants of the Crown," has been, unfortunately, crowded out of the House of Commons hitherto. On Friday evening last, when it was again on the paper, the house was counted out before the motion could be brought forward. Such is the affection entertained towards us by our deputies. The National Chamber of Trade has obtained expressions of opinion on this subject from several prominent members. Among others a characteristically elaborate one from Mr. Gladstone, who has considered the subject, and formed his own opinions on it, but is by no means sure that they would be agreeable to either party. He is not prepared to justify a system under which civil servants of the Crown receive salaries for managing co-operative stores on behalf of the public. On the other hand, he thinks their removal from this function would do little to relieve the pressure which is complained of, and that the true remedy is one which the tradesmen have in their own hands, and cannot be deprived of if they choose to use it. We may inform Mr. Gladstone that tradesmen care less to be relieved from the pressure to which he alludes than to be protected from the sting of an injustice which he himself admits.

The Pharmacy Bill drafted by the Irish College of Physicians has been referred to a select committee, and our report will show how the agitation is proceeding in that atmosphere. Home Rule in pharmacy seems likely to be a promising party cry for the apothecaries.

A new Alkali Act has passed the House of Commons, the object of which is to increase considerably the stringency of the present laws respecting the escape of muriatic acid and other noxious gases. The House of Commons, too, has passed a Bill to amend the Apothecaries' Act. It empowers the Apothecaries' Company to strike off from their list of licentiates the name of any person convicted of crime, or who shall, after due enquiry, be judged by the Medical General Council to have been guilty of infamous conduct in any professional respect. A clause declares that nothing in this Bill is to deprive the Apothecaries'



Company of such right as they now have, or relieve them from any existing obligation, to admit women to the examinations for certificates to act as apothecaries, or to enter on the list of licentiates women who have qualified to be registered.

The *soirée* given at his own residence by Dr. Dobell, to which we referred in our last issue, has been the subject of some un-called-for remarks in one or more of the medical journals. The *British Medical Journal* supposes that reporters of the "medical press were invited," and regards this as "a breach of professional propriety." We should not refer to the remarks if it were not that as a mention of the *soirée* appeared in our pages we think it only due to Dr. Dobell to state that they appeared entirely without his knowledge. Dr. Dobell gave a large professional party (there were nearly 400 gentlemen present), and it is not extraordinary that among these were some who contribute to certain journals. As certain novelties were exhibited on that occasion there was no reason in the world why what was of general interest should not be made public.

The results of Hospital Sunday in London have turned out better than was at first feared. Upwards of 28,000*l.* has been already paid in—a little better than last year. Her Majesty has declined to repeat her last year's donation of 100 guineas. Among the curiosities of the collection was the sum of 15*s.* collected at the Great Cambridge Hall, after an earnest appeal from Mr. Jabez Inwards in aid of the Temperance Hospital, which, having been but recently established, would not have otherwise shared in the public liberality.

The French Government is considering a proposal to establish a tax on pharmaceutical specialities which will correspond to our patent medicine stamps. A peculiarity of their scheme is that the rates of the tax would ascend in proportion to the weight or measure of the medicine. Perfumery specialities are to be included.

A great many interesting adulteration cases are reported this month. Mr. Wontner, acting for Messrs. Hearon, Squire & Francis, and for Mr. Cocks, of Chancery Lane, scored another victory in a scammony case. Quinine, claret, preserved peas, and arrowroot have also been investigated.

We publish some interesting correspondence between Mr. Johnson, chemist, of Kilburn, and Lord George Hamilton, one of the members for Middlesex, anent the Civil Service trading. This correspondence, like so many other samples, shows that members of Parliament generally will not understand that all that is asked of Parliament by tradesmen is a simple act of justice, and by no means protection from co-operation.

A contributor supplies some interesting passages from his autobiography, with the object of showing that even masters are not always so angelic as they believe themselves to be, and that their peculiarities may to some extent account for their occasional difficulty in getting well suited with an assistant.

Several subscribers, both in London and the provinces, have asked us to reprint the article which appeared in our April number, entitled "Nine Days in a Co-operative Store," for distribution among their customers. We have done this, with a few slight modifications, and can supply the circulars at the rate of 2*s.* 6*d.* per hundred, post-free.

Scotland supplies our portrait gallery this month with a fine likeness of Mr. John Mackay, whose pharmaceutical reputation, however, is by no means bounded by the Tweed.

## JOHN MACKAY.

IN proceeding with this series of personal sketches it is high time that we took our camera out for a country trip. Among certain members of Parliament there seems to be an impression that all the pharmaceutical fame and talent, and nearly all the pharmaceutical honesty, of Great Britain are concentrated in London. With all necessary respect for ourselves, we, of course, know better than this, and whether we look east, west, north, or south, we find ourselves tempted with an abundant choice of eminent pharmacists, to any one of whom we should be proud to pay our respects. The miserable candle of the conceited old Greek cynic is not wanted here. Nearly all the leading provincial towns contain chemists and druggists who are such burning and shining lights to their profession that seeking for them is unnecessary. Our difficulty lies in selection. We cross the Tweed, however, and in the fair capital of our sister kingdom we have no difficulty in discovering the gentleman who for thirteen years has represented his countrymen on the council board in London. Certainly no member of the Pharmaceutical Council has been more truly representative in the sense of watching the interests of his more immediate constituents than Mr. Mackay; and, on the other hand, none has been less representative in the sense of allowing local prejudices to interfere with a wide vision and a liberal consideration for the requirements of other circles.

Mr. Mackay was born in Edinburgh in 1818, and at the mature age of 12 was apprenticed to a well-known firm of chemists, Messrs. Pugh & Plews, with whom he served six years. During a part of this period, the hours of business were from 7 p.m. until 11 p.m. every day, and on Sunday from 9 a.m. to 10 p.m., the shop being open the whole day.

There seems to have been something peculiarly invigorating in the long hours of past times, for the subjects of nearly all the sketches we have written have passed through a servitude of this character, and, what is still more singular, have invariably laid the foundations of their future success during the epoch of their severest labour. It was so in this case.

There was no time allowed for study or reading, so Mr. Mackay attended lectures on *Materia Medica* during the breakfast hour, and on Chemistry during the dinner hour, and acted as class assistant to Dr. John Murray, lecturer on chemistry during the session 1833-34. Towards the close of 1836 Mr. Mackay left Edinburgh to enter upon a situation in the establishment of John Bell & Co., Oxford Street, London. A short time previous to his arrival, the late Henry Deane, of Clapham, had left; but Jacob Bell and his brother Frederick both took their share of the daily counter routine along with the other assistants. The late John Garle, so long connected with the Society, and up to the time of his death one of the London Board of Examiners, belonged to the staff at this time, and in the spring following, Mr. Thomas Hyde Hills, now President of the Society, entered the business as an assistant. The exigencies of the business were such that the only time the assistants had for study was after 11 o'clock at night; and for many months a few of them met for mutual improvement, and long after midnight they might have been found studying—reading papers and questioning one another on chemistry, pharmacy, and kindred subjects. Old John Bell, the type of all that was amiable and good, and the founder of the firm, came regularly to business at 11 o'clock, remaining to dinner with the young men, and driving home to Wandsworth in his pony-carriage between 4 and 5 o'clock. Thursdays and Saturdays were exceptions, however; for, being a strict Quaker, he remained at Wandsworth to attend meetings on those days, as well as on Sundays.

In 1838 Mr. Mackay commenced business in Edinburgh as a chemist and druggist. His start in life was no exception to the

THE CHEMIST AND DRUGGIST PORTRAIT GALLERY.

X.



*John Mackay*

JOHN MACKAY, EDINBURGH.





all hard work required to establish a dispensing business. Edinburgh at that time was full of chemists, and Mr. Mackay has been heard to say that more than once he has had at the back of his counter a whole day ready to supply wants, and has been rewarded before closing by the purchase of trifling articles such as a seidlitz powder. As a Scotchman, however, Mr. Mackay had calculated on a commencement of this character, so it did not altogether discourage him. With perseverance and courage uppermost he turned his forced leisure to account by putting up some proprietary articles, which he anticipated would find a market sometime, and they did. The business developed gradually, and the proprietary articles formed the nucleus of a wholesale trade which is now somewhat considerable.

In 1841 the Pharmaceutical Society was established, and at its very outset Jacob Bell asked Mr. Mackay to look after its interests in Edinburgh. He commenced his connection with the Society by collecting the annual subscriptions, which at that time amounted to 2*l.* 2*s.*—and from then till now he has been the recognised honorary secretary of the North British Branch.

In the spring of 1852 Mr. Mackay was examined before a select committee of the House of Commons in regard to the state of pharmacy in Scotland, and the Bill then under consideration became the well-known Act under which the title of Pharmaceutical Chemist was made distinctive and recognised by the legislature. At this time the labour connected with his position was considerable, and the correspondence he conducted very voluminous. A Board of Examiners for Scotland was appointed, a committee of management elected, and the machinery required as a branch of the Society fairly set going. Annual scientific meetings were established, and the pages of the *Pharmaceutical Journal* for several years testify to the value of his communications from Scotland.

Upon the death of Mr. J. F. Macfarlane, of Edinburgh, in 1861, Mr. Mackay was unanimously elected his successor on the Pharmaceutical Council, a post he has ever since continued to occupy. He could, certainly, be no other than an active member in any subject in which he interested himself has been always sure of a thorough investigation. One of the first subjects on which he exerted himself was in respect to the Society's Journal. He insisted that it could be published at a much less price than it was then suffering, and ultimately managed to place it on a better footing. The first year of his plan effected a saving of 434*l.* to the Society. Mr. George Waugh shook his head when Mr. Mackay proposed to make a reform in this direction, and promised to give the Council a dinner at Greenwich if half the innovator's estimate was realised. The gentleman afterwards cheerfully admitted his error, and was true to his word about the Greenwich dinner, with the slight exception that, at Mr. Mackay's own request, Mr. Waugh sent 20*l.* to the benevolent fund, instead of spending the money on a whitebait.

Mr. Mackay took an active part in the promotion of the Pharmacy Act of 1868, and no doubt the recent separation of the Society from pecuniary interest in the School of Pharmacy has been brought to pass mainly through his arguments. Mr. Mackay's services to Scottish pharmacy are best known to pharmacists north of the Tweed. Let us quote the remarks of one of them. On May 27, 1869, some of his friends in Scotland and England gave him a dinner in Edinburgh in recognition of his eminent services to the "North British Branch." He was presented on that occasion with several pieces of silver plate, worth about 180*l.* Mr. H. C. Baildon presided, and, proposing Mr. Mackay's health, said:—

"That no record existed of Mr. Mackay's labours up to 1852, when the first Pharmacy Act was obtained, but the correspondence connected with it must have involved a large sacrifice of

time and labour. Subsequently to this he had attended 49 meetings for examination, and had organised 68 scientific meetings, the greater number of which would certainly not have been given but through the strenuous exertions and personal influence of Mr. Mackay. In addition he acted as honorary secretary at no fewer than 17 annual meetings. These represent an amount of time and labour voluntarily given, which, I hesitate not to say, no other member in Scotland was prepared to give. But our friend did all this unobtrusively and unostentatiously, with one object kept steadily in view, namely, the advancement of the science of pharmacy through the instrumentality of the Pharmaceutical Society."

In April, 1870, the Philadelphia College of Pharmacy sent Mr. Mackay their diploma constituting him a corresponding member of their college.

As showing the estimation in which Mr. Mackay is held by his fellow-citizens, it may be mentioned that he was for three years one of the Governors of the Merchant Company; for three years a member of the Council of the Royal Scottish Society of Arts, and for one year its senior Vice-President. During his official connection with this Society, he contributed several papers, all of which were printed in the Society's "Transactions"; while, for his researches in connection with German yeast, he was awarded the silver medal and a piece of plate. He has also held other offices in different institutions of Edinburgh.

In the course of an excellent address delivered by Mr. Mackay to the pharmaceutical students at Bloomsbury Square, in October, 1871, he said:—

"I am one of those who believe we all have our mission, and that our duty, in whatever sphere we may be placed, is to do our best; and thus acting, we are told, angels can do no more; while such exertions will, and ought to, carry with them a feeling of happiness and comfort."

In these times, when angels seem to have ceased to do anything, or to take any visible interest in mundane affairs, we are thankful for such admirable substitutes as Mr. Mackay has proved himself. Earnest of purpose, faithful to principle, but always considerate to every opponent, none can come into contact with him and not part the better for such an influence.

## THE SYNONYM AND SOME MINOR ARTS OF COMPOSITION.

By JOSEPH INCE.

NO apology is needed in this Journal for the introduction of a purely literary subject when it bears immediate reference to the pursuit of chemistry. Nor will practical detail be found wanting in these remarks, for I venture to lay before the reader some results which I have aided to accomplish, and which have been laboriously considered during the past six months.

Many pharmacists in our day write books; more of the younger generation will follow their example: to neither, it is hoped, will it be distasteful to discuss in friendly council a branch of the mechanism of their art.

The synonym is of two kinds, literary and scientific; the one a figure of rhetoric, the other a technical expression. Bold and *daring* will illustrate the first; mercurous chloride and *calomel* the second. Without hesitation I would assert that the presence or absence of the first in composition makes the difference between writings that arrest attention and those which are either unheeded or forgotten. Synonym is derived from two Greek words, *σύν* with, *ὄνομα* a name.



In composition it means the art of expressing the same thing or the same thought in different words or phrases; in chemistry, the art of expressing the same thing, but not the same thought, in different words. In the one it is a figure of speech; in the other a variety in nomenclature. Let us confine ourselves at starting to the first, of which the following is a perfect illustration: *Abijt, evasit, erupit et effugit*. This is not merely a list of words, but an intelligible sentence. Bouillet says, "*L'étude des synonymes est de la plus haute importance pour quiconque veut écrire ou parler une langue avec une entière justesse.*" But I must not claim a dishonest advantage for the subject by omitting the dictum of La Bruyère: "*Les esprits médiocres ne trouvent point l'unique expression et usent de synonymes.*" What the author intended I fail entirely to discover, for nature teaches better things. There are myriads of leaves in plants and flowers, and yet no two are alike: they are the same form of life expressed in an endless variety of manner, each new leaf is the synonym of the other. Nowhere can we see better the dignity and force of language than in the authorised version of the Bible. Take for instance this passage of extreme beauty: "In thy presence is fulness of joy; at thy right hand there are pleasures for evermore." *Pleasures* are the synonym of *joy*; *at thy right hand* is the synonym of *in thy presence*; the second half of the sentence is the synonym of the half preceding; from which we learn the strict grammatical rule already mentioned, that a synonym may consist either of a word, a phrase, or a change in the expression of a thought. Let us take a final illustration, founded on the Elizabethan style. Suppose a commonplace writer had to describe the moon. In the first sentence she would be called *the moon*; in the second she would be called *the moon*; and in the third sentence she would be called *the moon*. But introduce the synonym, and in the first sentence she would be called the moon; in the second phrase she would probably be termed Diana; and in the last paragraph the Queen of Night. Infuse this into ordinary composition, and the beauty of the description will be in exact proportion to the selection of the writer. Moreover, where this extreme care is taken (and the trouble is not misemployed), long, wearisome, rolling sentences are impossible; nor is grace obtained to the detriment of strength.

Chemistry, more than any other class of writing, demands this close attention: the range of subjects is enormous; the mechanism of description may become monotonous, a fact appreciated to the full by those who have undergone the labour of explaining a few hundred processes. Each differs vastly in result, but there is of necessity a strong family likeness in the mode of explanation. General writers, with an unlimited command of topics, are at no loss to help themselves, and we may learn something from their ingenuity. Thus two lines passed for good poetry:

Let observation with extensive view  
Survey mankind from China to Peru.

"Sir," said Johnson, "that just means this: let observation with extensive observation observe humanity." The poet, however, knew synonym, and extracted a decent sentence out of unpromising materials. But the chemist is in the hardest plight: the stock-in-trade of his vocabulary would require the scantiest inventory; when, therefore, by diligent, pounding labour and inflexible determination, he overcomes the difficulty he is entitled to the warmest commendation. On one rock, however, the chemist who conveys elementary instruction need not founder. It is that omnipresent, irrepressible being, called "the student." He is generally made to do so many things—*let the student observe, or now the student will perceive, the student is reminded, and so on, ad infinitum*. He must turn up sometimes, but his continual re-appearance is to be avoided.

This essential line of demarcation exists between the literary

and the technical synonym; the first is interchangeable and admits of variation; the second has one governing word on which the synonyms depend. We talk of justice, fairness, uprightness, equitable dealing, and a crowd of various expressions; each and all are synonyms of each other, but justice is as much the synonym of uprightness, as uprightness is of justice. In chemistry it is otherwise; there is one governing standard word, and no other for the type. In fact the derivation of this class of synonym might be (as etymologically it is not) *ὁν, νόμος*, that which is consistent with, additional to, or explanatory of, the law—the governing word. The varied ways sanctioned by popular use or former custom, or individual theory, by which the standard title is expressed, are synonyms. And hence the utmost caution and most competent knowledge is required at an author's hands that he should hold forth no indefinite and uncertain nomenclature.

Two chances of obscurity should be removed.

1. The translation of a word is not a synonym; it is the same word in a different language. For instance, take the earth. We might say: 1, The Earth; 2, Terra; 3, La Terre; and 4, Die Erde. These are not synonyms, but the *same* word moulded in four forms of language. So we might say of Heaven: 1, Heaven; 2, Cælum; 3, Le Ciel; and 4, Der Himmel. That these are not synonyms, but four moulds of language, is evident from the fact that in both cases 2 and 3 are words identical. Thus morphine acetate has for its synonym either morphine acetate, or acetate of morphia—not both. But if zinc sulphate be accepted by an author as the standard word, its synonym is *white vitriol*, and not *zinci sulphas*. Once let the synonym stand clear, and never be selected at hap-hazard, and the intention of the writer is manifest to the least observant.

2. Variations in nomenclature, owing to an unsettled rule, are not to be classed as synonyms.

Nothing is more despairing than the perplexed condition of our alkaloid nomenclature. We are still in doubt, with all our advanced views of accuracy, as to the correct scientific terminology that we should adopt. Thus we have morphia and morphine on the one hand, quinine and quinia on the other. We have nicotine and nicotia, and, unfortunately, we have also aconitine (Groves and others), aconitina (Morson), aconitin (Flückiger), and aconitia (British Pharmacopœia). Almost up to the end of the seventeenth century our English language exhibited the same uncertainty. I have a folio Milton, where, even in celebrated passages, *conspicuous* words are printed in different manners. Some variations are made upon an express theory. Thus, America has contributed the abomination of dropping out the *u* in honour, colour, saviour and the like; while Archdeacon Hare and his brother endeavoured to introduce *perplext* and *mixt* and a whole spelling of their own. French books, before Voltaire, printed the imperfect *oit* instead of *ait*, and wrote *il sçavoit* or *il donnoit*. Boulevard or Boulevart is capriciously painted on the streets in Paris, and the spelling changes with the fashion of the reigning dynasty. All modern authorities write *chemist*, except the *Times* newspaper, where *chymist* is invariably employed. But these words are not synonyms: they are undetermined and indefinite orthography. They are the same words meaning the same things, and in a chemical index they may be printed as in the following example:—Aconitine (ia, ina, in). The standard chemical word is printed first. Within the bracket (if a variety of terminations), the Pharmacopœial termination first, the remaining terminations, few or many, given in sequence. Thus, no chemist's views are controverted, and the reader may gain instruction, even from an index.

One last word about the synonym. Following the changes of theoretical chemistry, it may happen, and it does, that well-known standard words are dethroned, and in turn become ranked



synonyms. This will depend on the intention of the writer, and proves the assertion made that in chemistry there is a standard title; the various ways in which it may be expressed constitute its synonyms. Acids exhibit this transformation in the most striking way. But the same holds good throughout the range of what is called organic chemistry. Accept hydrogen cyanide as the standard term explained by the formula  $\text{HCy}$ , hydrogen sulphate as that represented by  $\text{H}_2\text{SO}_4$ , and we have for synonyms hydrocyanic acid and sulphuric acid, as well as the popular expressions *prussic acid* and *oil of vitriol*. In the same way alcohol becomes a synonym of ethyl hydrate, and chloroform of methenyl chloride. Let these terms be not accepted, and hydrocyanic and sulphuric acid, alcohol and chloroform regain their original position. Thus the acceptance of the rejection of a synonym becomes to some extent the indication of the particular theory entertained. I had arranged other things to say respecting minor arts of composition, but synonyms have proved a snare, and the rest must be omitted. Could any reader ask what is the use of these speculations, I answer, that is a question with which I have not one grain of sympathy. When a man writes a book, whether chemical or otherwise, he should start with a profound respect for the readers whom he may hope to gain, and on his part no toil should be neglected to render him worthy of their favour. The public is the ultimate judge of excellence—*vox populi vox Dei*.

Should it be further asked what can be the possible difference between a stray word or two being a synonym or not, I will conclude by a short parable. There is a body which answers to the formula  $\text{C}_{17}\text{H}_{19}\text{NO}_3$ , and it is called morphine; withdraw from its composition two atoms of hydrogen and one of oxygen and it becomes apomorphine. The first is a golden anodyne; the second a strong emetic. These bodies are as distinct in medical effect as light from darkness, and as wide asunder as the poles; yet the difference in the constitution of the two is the presence or absence of one drop of water.

## IN SEARCH OF A MASTER.

(BY AN EMANCIPATED SLAVE.)

HAVE often thought when reading that enthusiastic chapter of Teufelsdröckh's *"Holotage,"* that could its brilliant author but have been at some period of his life a pharmacist's assistant, how greatly might the personal element have predominated in his eloquence, and how much more emotionally would his utterances have been borne in upon my mind. Still more venerable to him then would have been the old hand, crooked and coarse, and still more indefeasibly loyal its cunning and virtue: deeper would have been his reverence for the deformed conscript, and wider still his sympathy for his "hardly-entreated brother." I have wondered, too, whether the gentleman who embellished the April number of *THE CHEMIST AND DRUGGIST* with a recital of the sins and shortcomings of the four miserable beings who had the misfortune to come in contact with him could ever have tasted for himself the delicious experiences of an assistant's life. But for assurance that he had trodden the tortuous paths of "Minor" and "Major," I should certainly have imagined that he was specially created as director of a pharmaceutical establishment, and that his eternal propensity for worrying was the immediate outcome of inspiration. *Dominus nascitur non* may be quite as true as the more orthodox dictum. Be that as it may, and accepting as credible your correspondent's description of his encounter with the three disgraces—the dilute, the dunce, and the dainty—I will endeavour to enhance the value of his picture by painting the opposite side of it; and doing this I shall best effect my object by following the outline traced by my predecessor.

It is, then, something very little less than a dozen years ago that I first took my stand behind the back counter of a somewhat obtrusive establishment in a by no means pretentious

street in a West of England town. I was then seventeen years old, and had of course just left school. My father had died a short time previously, and I was left to the care of a rich old uncle, who very unreasonably, as I then thought, insisted upon apprenticing me to some definite business or trade—of what nature it was left for me to decide. Led, perhaps, by one of those strange impulses which often exercise such a disagreeable influence on our fate, and attracted probably by the big show-bottles and bright lights of a druggist's window, I chose—to my everlasting disgrace be it written—pharmacy!

Circumstances which I need not further explain brought me in contact with the proprietor of the business I have alluded to, and after much preliminary nonsense to him I was bound for a period of four years to be taught the art and mystery, &c., and finally turned to be out a gay young pharmacist. Alas for such bright anticipations! Not many days' residence in my new quarters was required to disenchant me of my fond illusions; the big show-bottles speedily lost their bright colour, and the bright lights took a ghastly hue. My work began at 6.30 a.m. with sweeping out the shop and taking down the shutters. Breakfast came on at 7.30, and then followed two hours' dusting. By this time, probably, there would be half a dozen pounds of paint to "dispense" (!) or a score of horse balls to be rolled out. And so the day would pass, my acquaintance with the *Materia Medica* ranging from white lead to Barbadoes aloes, and then back to white lead again. *Ars est celare artem*, said the Romans, and so evidently thought my long-headed master, for the art of my calling—to be taught which I had been apprenticed—was most effectually concealed. We rarely closed at night till after 9 o'clock, and even then—when the door was fastened—it fell to the lot of the poor apprentice to spend another half hour in clearing down the counters, and putting things generally in order.

Let no one think I would sneer at these occupations as menial, or that I consider them beneath the dignity of any pair of honest hands. No human being will be any the worse for having swept a floor, nor is it incompatible with a high moral character to be able to beat up a phlegm smartly. But I do most vehemently complain of men, ignorant and vulgar themselves, daring to accept the responsibility of training a young man in the principles of scientific pharmacy, and then, after accepting, perhaps, as in my own case, a very handsome premium, employing him as nothing better than a second-rate errand boy, not only denying him the opportunity of acquiring any fresh knowledge, but by consigning him to a never-ending hum-drum, monotonous drudgery, crushing out of him whatever intelligence and aptitude he already possessed.

I know the excuse is made that the majority of the class from which apprentices are obtained are woefully deficient in elementary education, and that it is hopeless to attempt to build a scientific edifice upon a rotten foundation. But here, again, *qui s'excuse s'accuse*, and the blame recoils upon the pharmacist, who is only just beginning to comprehend that he is most seriously failing in his duty, both to his pupil and himself, if he receives the former as his apprentice without the very moderate proof of qualification required by the preliminary examination. The scarcity of good assistants is now an everyday complaint; but let your "searching" correspondent, and others who, from this reason, are suffering inconvenience, although the market is all the while glutted with incompetent men, reflect that had the masters done their duty towards their apprentices this dearth of good material would never have occurred. And let those who now have apprentices under their care remember that they will have very much to answer for with regard to their future success or failure. As it was, I found it a matter of the greatest possible difficulty to keep up the two or three school subjects which were essential to my progress. Fat and easy living theorists may talk as they will: human nature remains the same all the world over, none the less so because exhibited in the form of a druggist's apprentice. And after 14 or 15 hours' hard manual labour in the shop, I should like to see the constitution which could endure the strain of close mental application afterwards. The gentleman whom I had the honour to serve was, no doubt, a very excellent man in his way. He had joined the Society at its formation, and, therefore, rejoiced in the appellation of "Pharmaceutical Chemist," with all the honours pertaining thereto. Unfortunately, however, his mind and inclination ran more upon cleansing drinks and cordial balls than upon any other department of medicine. Hence, when I left him at the welcome expiration of the four years, I could, no doubt, have brought a cow safely through her confine-



ment, or relieved an attack of colic in a horse, but as for dispensing a mixture decently, or reading a prescription in full Latin, I should have been sorry to make the attempt.

Thus, then, ended the first stage in my pharmaceutical life, and anything but a satisfactory one did I consider it. About a month afterwards I managed to get through the preliminary examination, creditably, I suppose, as my name stood not far from the top of the list. And now I determined to find, if possible, a situation which would afford rather more experience in things pertaining to pharmacy proper than my apprenticeship had brought to me. An advertisement turned up which seemed to be promising. It ran thus: "Wanted, in a thorough house of business, an energetic young man, from 21 to 24 years of age, desirous of improving himself in dispensing. Time for study, 14 hours weekly. Apply, X., &c." I applied, and after two or three particularly lengthy epistles on the part of "X.," into which the religious element entered largely, we came to terms. As I had just completed my apprenticeship, and possessed, according to my own confession, no very striking qualifications, "X." considered that he should be doing himself an injustice if he offered me a higher salary than 20*l.* per annum. This at the end of a four years' apprenticeship, the premium for which had been 250*l.*, did not strike me as a very brilliant remuneration. However, there was "time for study," and "opportunities for improvement," both of which were then important items to me. I found "X." embodied in a gaunt, rambling figure, and a strikingly cadaverous face. He looked, in fact, as if Nature, meaning to turn out a very fine specimen of the ritualistic type, had carried her intention a trifle too far, and thrown in a dash of the undertaker. Besides "X." himself there was an unfortunate apprentice, who had been there rather over a year, during which time he assured me he had lost no less than three stone ten pounds and a quarter in weight. I found very speedily that I was, indeed, landed in a "thorough house of business," for Hood's seamstress could hardly have worked more unceasingly than we. I found my "opportunities for improvement in dispensing" developed themselves in a very unexpected manner. Mr. "X." had the honour of styling himself, "Dispenser to the Cottage Hospital and Infirmary," a building situated about one mile and a half from the shop, a distance which I had to traverse four times a day, and twice on Sundays. One of my first attempts was, of course, to arrange for the promised 14 hours of study. With a smile, which, like that of the Heathen Chinee, was simple and child-like, "X." softly said, "Oh yes; the time allotted to you for thought, meditation, and study, is that which you spend in walking to and fro from the dispensary." On my endeavouring to show him that it was well-nigh impossible to perform either of the three processes under such difficulties, he blandly informed me that he invariably composed all his addresses to his Sunday-school class while walking; and, surely, if that could be done, I could, with ease, carry on my train of secular reflections under similar conditions. I soon saw that any hope I had entertained of reading or working for my next examination was futile and visionary, and that the best thing I could do was to glean what little experience in dispensing I could. I don't know whether some employers imagine that their assistants can live on magnum bonum jujubes and gelatine lozenges, but that was about the only means of sustenance in "X.'s" establishment. Bacon, far gone in rust, for breakfast; meat in a chronic state of semi-coldness for dinner, and a Dutch cheese, which might have served as a charge for the Woolwich Infant—and have undergone no alteration in form—for supper, was our regular and unvarying diet. Oh, if men like "X." whose whole being is one concentrated combination of hypocrisy and cant, could see how utterly loathsome and despicable is their character and profession, they would surely throw off the mask, and come boldly out in their true colours of mean and crafty cravens. "X." who would shut his eyes and lift his hands in righteous horror at some trivial failing or fault in another, could still condescend to, and delight in, the petty trickeries and mean deceits which a more reckless transgressor would abhor. Thus, if a brother chemist happened to send in for a few patent medicines it was the joy of "X." to carefully secrete among the wrappers of each package one or more of his own labels; upon other articles, again, such as pots of honey, he would place an inside wrapper bearing his own name, and marked at a very low price, and upon this an outside covering with a blank label, for the use of his fellow trader, who would in all probability mark it at a higher figure than he had done. It was owing to his endeavours, upon one occasion, when detected in this trickery, to fix the stigma upon myself, that

things came to a crisis; and, after I had relieved my mind to an extent which I believe he will ever remember, we parted.

An apparently very aristocratic firm of pharmacists just at that time were advertising a vacancy in their establishment with them I communicated, and in a short time was duly installed in their service. The direction was composed of two brothers, one of whom sported an American degree of Doctor of Philosophy. Along the front of their shop, which was exceedingly elaborate, was a gorgeous enamelled tablet, bearing the inscription, L. & Co., Professional and Analytical Chemists, Wine Merchants, and Tobacconists." During the whole time of my residence there, no instance was recorded of their professional or analytical skill being called into requisition. I remember, however, an instance occurred which rather severely shook the reputation of the Ph.D. A gentleman came into the shop one day and enquired of his celebrity if he had any hydrosulphuric acid. "Oh, decidedly," was the reply: the gentleman required half a pint. Ph.D. rushed into the little storeroom behind the front shop, which was naturally labelled "Laboratory," in gilt letters, and hurriedly searched his little hand-book of chemistry for particulars of its preparation. The result was that he placed in an 3viij. bottle a small handful of ferrous sulphide and filled it up with dilute sulphuric acid. Quickly corking and wrapping it up, all the while congratulating himself on his expedition, he handed it to his customer, who giving it to his wife to carry in her muff (a very handsome piece of sealskin), left the shop. Another five minutes and the Ph.D. knew full well what are the combined effects of a man's wrath and a woman's tongue; I don't think he ever recovered the shock, and I believe the tablet above the door of "L. & Co." is now no more known.

Time passed on, and after enduring the chains of serfdom in every description and variety of pharmacies—scorned like a animal of an inferior creation, snubbed as a being of a lower order in the social scale, in short, treated as anything but everything but a gentleman and an equal—a sudden telegram brought me one morning tidings of my uncle's decease, and, I was his sole heir, I was very speedily emancipated from the thralldom of pharmacy.

#### REPORT ON THE ADULTERATION ACT.

THE Select Committee appointed to inquire into the operation of the Adulteration of Food Act, 1872, have considered the matters to them referred, and have agreed to the following Report:—

Your committee having held fourteen meetings, and examined fifty-seven witnesses, have arrived at the unanimous conclusion that the Act has done much good. It has, at the same time, inflicted considerable injury, and imposed heavy and undeserved penalties upon some respectable tradesmen. This appears to have been owing mainly to the want of a clear understanding as to what *does* and what *does not* constitute adulteration; and to some cases to the conflicting decisions and inexperience of the analysts. Your committee, however, are of opinion that the Act itself is defective, and needs amendment.

The adoption of the Act has been by no means general, and in many cases where it is applied and officers have been appointed, its operation has been of the most restricted character. Even where a competent analyst has been established, if the local authority does not associate a special inspector with him, or does not insist upon the police or other recognised officials performing the duties of inspectors, the Act remains a dead letter. It appears that only in 26 boroughs and 34 counties have appointments been made, while the number of boroughs under the Act is 171, and of counties, 54. In the City of London the Commissioners of Sewers, and in the rest of the metropolis all the vestries or district boards under the Metropolitan Local Management Act, have appointed analysts.

From a return of the convictions in the year 1873, as received by the Home Office, it will be seen that the number of proceedings outside the metropolis and a few large towns has been singularly small. The amount of good resulting from the Act must not, however, be judged by the number of the prosecutions and convictions. The deterrent effects are undoubtedly great, and the opinion of the promoters has been substantiated, that the most beneficial effects of the Act would be to prevent adulteration, rather than to punish it.



a.—It appears that, since the Report of 1856, certain y prepared teas have been imported from China, some largely mixed with exhausted leaves and ferruginous and others much too highly faced or coloured; the ingredients used for colouring being chiefly Prussian blue or indigo, red gypsum, and turmeric; but the total amount of such has been small, and is kept in check mainly by the low of pure teas. The import of green teas has recently fallen considerably, in consequence, it is stated, of the operations of

ing tea after the duty is paid was, prior to the Act of practised to a small extent in this country; but whether in China or at home, the evidence is conclusive that in colouring a deleterious matter is used to such an extent as to be utterly injurious to health; at the same time facing may be used to conceal tea of a bad quality. Your committee has reason to believe that very little adulteration of tea is used in this country.

They would further observe that defacing tea, or removing its natural colour, seems now much more common, but this process does not appear to extract the ingredients which form the of the colouring matter; it simply removes the colour, leaving all the other materials on the tea.

It is proved that the bright green teas of China are always and that the natural green teas of Japan, India, &c., are entirely of a colour hardly distinguishable from some quality of black tea. While condemning the practice of highly facing tea, your committee cannot recommend that fairly faced tea should be condemned as an adulterated article.

Suggestions have been made that a certain percentage should be allowed for colouring matters and other impurities in tea. Your committee consider that the limitation to a very small percentage of foreign matter would exclude from the country wholesome low-priced teas, which are largely consumed by the poor, and if a less stringent limit were adopted, it might have the effect of increasing the amount of facing laid upon the descriptions of green teas.

The Act has borne with considerable hardship upon the retailers, among others, from the following causes:—The evidence in the samples being, in the first instance, entirely in the hands of the prosecution; the defendant being incapacitated as a witness; the employment of analysts, to the exclusion of practical chemists of the article; the difference among analysts, and the material decisions thereon; and the recent judgment of the Court of Queen's Bench, that under this Act the faced tea known as green tea is adulterated; but more especially that the faced adulteration has taken place before the tea reached the retailer, and that he is not responsible for the frauds and tricks of the Chinese manufacturer.

It has been repeatedly suggested to your committee that an examination of tea, for the purpose of detecting impurities, should be undertaken on landing by the Customs, and that all tea found to be seriously adulterated should not be admitted for consumption.

The Chairman of the Customs admitted that such an inspection of tea in bond could be undertaken by the Custom House officers, and that the great bulk of the tea would require but a superficial examination by good practical officials, while suspected samples could be analysed at the laboratory at Somerset House.

Your committee recommend that this examination should be undertaken, as they believe it would practically stop the sale in this country of tea adulterated abroad, and relieve the retail dealer of the hardship which now arises from his being held answerable for certain manipulations of which he may be wholly ignorant.

ilk.—The evidence before your committee points to the fact that previous to the passing of the Act of 1872 milk was generally adulterated with water. It has since greatly improved in quality, wherever the Act has been enforced, but the results in improving the milk supply have not been attended without some serious cases of injury and injustice to the sellers.

So high and rigid a standard has been fixed by some authorities, and no sufficient allowances have been made for the natural variations in milk. Ten per cent. of milk solids may be difficult to obtain under certain unfavourable conditions. 12 or 14 under a more generous diet, a warmer atmosphere, and more comfortable lodging. Not only does the quantity of milk vary with the food, the breed of cattle, the time of year, and treatment of the animals, but the milk of one cow

of the same breed will differ greatly from that of another, managed under a precisely similar system; and further, the first and last pint of milk which a cow gives at the same milking will present all the difference between an extremely poor, and an exceedingly rich milk. Allowances should therefore be made for these natural variations which some purely scientific chemists seem to have occasionally overlooked.

It has been argued that notwithstanding all these discrepancies, a certain percentage of solids might be agreed upon below which no milk should be considered pure. If a low standard were fixed, there would be a great inducement for the vendors of really rich milk to abstract a portion of the cream without reducing the milk below the recognised standard; and, on the other hand, it might offer a premium upon the production of a naturally poor class of milk.

Your committee are decidedly of opinion that the fraudulent abstraction of cream should be punishable; at the same time they consider the sale of skim milk should be encouraged, as it is certainly a nutritious and valuable article of food; but your committee are unanimous that the sale of *skim* milk for new should decidedly be regarded as a punishable offence.

**Butter.**—Butter is often imperfectly made in the United Kingdom, and sometimes contains too much water, and now and then an unfair proportion of salt; beyond this, it does not appear that adulteration is much practised in this country. Certain foreign butters are mixed with lard and other fats, and there is reason to believe that salt and water, after the butter comes from the farmer, are added in some manufactories abroad. Attempts are being made in France and elsewhere to manufacture artificial butter, chiefly from the fat of animals; if these articles are composed of wholesome materials, and not sold as butter, your committee see no reason to forbid their sale. The slight colouring matter occasionally added to butter, cheese, &c., should not, in the opinion of your committee, be regarded as an adulteration.

**Bread.**—Bread, on the whole, appears to be fairly pure. Potatoes are used to help fermentation, and rice flour is employed in dusting the loaves. No doubt the chief adulteration is alum, and evidence was adduced showing the great difficulty which the best chemists experience in discovering minute quantities of alum in bread.

**Mixtures.**—Your committee have had under their consideration the sale of mixed articles of food and condiments; amongst them great prominence has been given to mustard and cocoa. The evidence tends to show that these articles have been sold pure, as well as mixed with other ingredients, to suit the requirements of consumers. And it has also been demonstrated to the satisfaction of your committee that the compounds are frequently made quite as much to suit the public taste as to increase the profit of the manufacturers. Inasmuch as by using a lower quality of mustard seed or cocoa bean a pure article may be made at a lower price than some of the mixtures. For this reason the statement of the proportion of each ingredient used could not be any real protection to the consumer, and should not be required. It is also due to the manufacturer to record that mixed mustard and prepared cocoa are and have long been manufactured at the Deptford Yard for the supply of the navy.

Your committee therefore come to the conclusion that the sale of such mixtures or compounds is allowable, and indeed needful to meet the public requirements, provided the fact of their being mixtures is plainly indicated to the purchaser by a legible label or notice conspicuously attached to the outside of each package in which, or vessel from which, such mixture is sold. A verbal declaration at the time of sale is impracticable, and if practicable would be unnecessary, when a proper label is used.

**Corn Flour.**—The attention of your committee has been called to the article known as corn flour, in reference to which important evidence as to its purity and its useful dietetic qualities has been given by some eminent medical and chemical authorities, which, however, is denied by one witness. Your committee are fully convinced that the manufacture is quite legitimate, and that like arrowroot, sago, and other starch food, corn flour is perfectly wholesome, but that it should not in any case be given to infants without a considerable admixture of milk.

**Wines, Spirits, and Beer.**—The adulteration of wines, spirits, and beer has not been extensively examined under the



Act of 1872. The Licensing Act, which was passed in the same year, contained special clauses against the adulteration of these articles. The evidence before your committee is of a negative character, and it may be that alcoholic drinks have slipped through between the two Acts. The adulteration clauses in the Licensing Act are sought to be repealed by a Bill that has just passed the House of Commons, and there appears to be no reason to doubt that if this Act is amended as your committee suggest, it will contain ample powers for detecting the adulteration in the drink as well as the food of the people. Witnesses have stated that spirits are largely diluted with water, but are rarely adulterated with sulphuric acid; that almost all wines are more or less "fortified" for the English market; and that water is often added by the publican to beer and porter (perhaps with an addition of salt or sugar), but few of those villainous compounds with which malt liquors were formerly much adulterated have been recently discovered by any analysis. There was a singularly unanimous expression of opinion from many scientific witnesses as to the baneful and maddening effects produced by the consumption of very new and roughly distilled spirits.

Several witnesses have complained to your committee of the manner in which the cases under this Act have been tried before Justices. They state that, in some instances, the magistrates, considering the prosecution to be a criminal one, would not allow the defendant to be examined. Your committee believe that, in all cases, this privilege should be accorded to the accused and his wife. Your committee also think that when a retail dealer, charged with adulterating an article, shall produce evidence that he bought the article under guarantee from a wholesale dealer, and that he sold the article in the same state and condition as he received it from such wholesale dealer, it shall be lawful for the magistrate, upon the retail dealer giving security for costs, to summon the wholesale dealer as well as the retailer. In some cases, magistrates have declined to allow any other analysis than that of the analyst appointed to act for the district to be taken as evidence. Your committee think that evidence from well-established analysts should be allowed to be produced for the defence, and they suggest that when cases of dispute arise between the chemical authorities there should be some court of appeal to settle the disputed points. It has been suggested that such an authority might be easily established at the laboratory of Somerset House, and the official witness from that department gave your committee to understand that, with a little enlargement and assistance, the existing laboratory and staff could undertake these important duties. In the absence of further information as to any better appeal, your committee suggest that where the analysis of the chemist of the local authority is challenged the sample which is the matter of dispute shall be analysed at the laboratory of Somerset House, and the decision arrived at there be regarded as final.

It was stated to your committee that some Justices would not accept the analysis of the chemist of the local authority without his presence in court; others insisted on his signature to his analysis being duly witnessed, and in all cases it appears that the inspector is bound himself to deliver the sample of the goods to the analyst. This, besides taking the inspector for days from his legitimate duties, entails considerable expense upon the local authority, in the case where the analyst resides outside the district, or where one gentleman holds several appointments. Your committee consider that if the sample is duly secured, and properly sealed, it may be sent by post, or by other safe means; and they are of opinion that the analysis of the chemist of the local authority should be received in evidence without his presence being necessary, unless the defendant should demand the personal attendance of such analyst. There does not seem to be much necessity for attestation of the analyst's signature, nor is it apparently required by existing Acts, but in any case your committee consider that the practice in this particular should be everywhere similar, and that proper forms for the analysis of different articles should be issued by some central authority, so as to secure greater uniformity and more detail in these documents in all courts of justice.

Many witnesses have declared that the failures and hardships in carrying out the Act have been chiefly due to the incompetence and inexperience of the analysts. Your committee, whilst refraining from endorsing this wholesale condemnation, admit that some of these gentlemen appear to have evinced

more zeal than discretion in carrying out their novel and difficult duties. In some cases, indeed, a decided want of chemical knowledge has been proved, but no more than was to be expected from the sudden call made for the services of adepts in a branch of chemistry which had not previously been very highly valued. Witnesses testified their belief that few really competent analysts were at present to be found in this country, and one eminent chemist stated he did not think more than a dozen such men existed; but, as chemical analysis will now be better taught and better understood, there seems to be reason to doubt that in a few years there will be an abundant supply of reliable scientific analysts. In the meantime, seems to your committee that small districts should be as much as possible consolidated; that, as a rule, the boroughs in county should be united with the county for the purposes of appointing one analyst for the entire district, and that the only way of securing the services of really efficient analysts is to offer them a fair remuneration, which can hardly be done without the union of several local authorities in one appointment.

To the Local Government Board has been confided the power of revoking or confirming the appointments of the analysts, but without any recognised authority to guide them (beyond the long list of testimonials which seem always forthcoming), the Board have not the means of performing satisfactorily the task imposed upon them. Your committee think some practical test might reasonably be required from the analysts to prove their competency to perform the duties of their office.

Evidence has been offered to your committee that the requisites for a thorough examination of the knowledge and skill the analyst exist at the School of Chemistry at South Kensington; and they suggest that the Local Government Board should have the option of calling upon the analyst for a certificate after having there passed such an examination.

Complaints have been made by the metropolitan vestries that the fines inflicted under the Act are paid to the General Police Fund. Your committee think that the Act of 1872 intended that the fines should be paid to the vestries, and they are of opinion that it is only reasonable the fines should go to the local authority which has had the trouble and expense of enforcing the Act.

Your committee consider that inspectors, when traders refuse to sell them articles which are exposed for sale, should be empowered to take samples of goods they suspect to be adulterated upon tendering payment of the full value of the article. This in all cases the inspector should leave with the trader a duplicate sample of the goods he intends to have analysed, properly securing and sealing the same in the presence of the vendor, and that in no case shall more than one month elapse before the result of the investigation is made known to the trader.

Your committee suggests that the two Acts to which this inquiry refers, viz., the Adulteration Acts of 1860 and 1872 (23 & 24 Vict. c. 84, and 35 & 36 Vict. c. 74), should be repealed, and another Act, consolidating and amending the statutes, substituted for them. That in the new Act, besides the changes already recommended, it should be provided that the fraudulent abstraction of important properties of any commodity should be a punishable offence, but that a distinction should be drawn between this and the fraudulent or noxious addition of ingredients, which more strictly speaking constitutes adulteration: and that Clause 9 of the Act of 1872 should be so far modified as not to make it incumbent on the analyst to give a certificate, except when he finds the articles submitted to him to be adulterated or debased. They further recommend that the Act should be made compulsory.

In conclusion, your committee believe it will afford some consolation to the public to know that in the matter of adulteration they are *cheated* rather than *poisoned*. Witnesses of the highest standing concur in stating that, in the numerous articles of food and drink which they have analysed, they have found scarcely anything absolutely injurious to health, and that if deleterious substances are occasionally employed for the purposes of adulteration they are used in such minute quantities as to be comparatively harmless. Your committee believe that it is the intention of Parliament that consumers should be protected from frauds, and that they should be enabled to procure the articles they ask for and require. But your committee do not consider that Parliament desires needlessly to hamper or fetter trade, still less to interfere between the buyer and seller with the view of regulating prices, or attempting to assist the consumer in ascertaining the real money value of any marketable commodity.





have the pleasure to announce another exercise in Toxicology. As on former occasions, the substance to be analysed shall consist of a mixture of flour and linseed meal, which may contain a well-known metallic poison. The mixture is to be subjected to such an examination as is required to detect suspected poison. Students who wish to compete should send in their names and analyses before the 20th inst. On the 25th we shall forward samples. Students' papers will be received up to the 15th of the following month.

ANSWERS.

The organic mixture which formed the subject of our last exercise contained 2.5 per cent. of cupric sulphate, or blue vitriol. This salt contains a large proportion of water of crystallisation (90 parts in 249.5), so that the quantity of copper present was really very small. In fact, each of the packets distributed for analysis contained .37 grain of copper, and a little more than twice this weight of the sulphuric radical. We mention these facts in order that our contributors may know a small quantity of matter they had to deal with. It is important to remember that the modifications which many substances undergo are often misleading when very small quantities are operated upon. Highly dilute solutions of sulphates, for example, do not give an immediate precipitate with barium chloride, notwithstanding the insolubility of barium sulphate in water and dilute acids. Small as the quantity of cupric sulphate present imparted a very decided colour to the mixture. When the ingredients were first mixed, the greenish colour was scarcely perceptible, but in a day or two it was so marked that there could be no doubt about the presence of a coloured salt. Several students do not appear to have noticed this peculiarity of the mixture, and thus failed to avail themselves of a valuable clue to the nature of the adulteration. Of the small number of metallic poisons to which the term "well-known" can be applied, there are but few coloured salts, and of these the copper compounds, distinguished by their blue or green colour, are the most conspicuous. The copper salts of most frequent occurrence are the sulphate, or blue vitriol, the mixture of acetates known as verdigris, and the arsenites extensively employed as pigments under such names as Scheele's green, Brunswick green, &c. The colour of the mixture was not sufficiently decided to enable one to say whether it was due to admixture with a blue or a green salt; but, assuming the presence of copper to have been confirmed by the regular examination, there could be no difficulty in deciding the state of combination in which it existed. In the first place, the solubility of the salt in water was unmistakable, so it was evidently not one of the arsenites. It remained then to distinguish between the acetates and the sulphates, a point easily settled, for barium chloride gave a decided precipitate in the aqueous solution acidified with hydrochloric acid; while ferric chloride did not give the slightest indication of the red colouration characteristic of acetates. The difficulty appears to have arisen from the fact that the green colour caused by the addition of ammonia to the aqueous solution was not very marked. One student, having tried himself that cupric sulphate was present, could not understand why it was that a solution of cupric sulphate of about the same tint as that obtained by treating the mixture with ammonia gave a comparatively deep colour with ammonia. It would be difficult to explain the cause of this difference, which might be attributed to the organic matter. It was very probable that the colour which the aqueous solution derived from the meal marked the ammonia reaction to a great extent.

PRIZES.

The First Prize for the best analysis of the mixture has been awarded to

ARTHUR WEDDELL, 45 High Street, Winchester.

The Second Prize has been awarded to

W. A. THIRLBY (T. A.), 17 Bloomsbury Square.

Marks Awarded for Analyses.

Arthur Weddell (1st Prize)	98
T. A. (2nd Prize)	96
H. J. Jackson	95
A. Kirkby	95
Omega	95
W. A. B.	93
W. E. R. Martin	90
J. W.	85
Concordia	80
Exonia	80
D. A. S.	78
Pegley	75
F. F.	50
H. A. K.	50
F. Williams, Junr.	50
Vitæ	50
S. W. A.	0
J. B.	0
J. C.	0
Embryo	0
B. O. W. L.	0
Sigma	0
Tento	0

TO CORRESPONDENTS.

\*. \* All Communications should include the names and addresses of the writers.

Prizes.—The students to whom prizes are awarded are requested to write at once to the publisher, naming the book they select, and stating how they wish it forwarded.

Any scientific book that is published at a price not greatly exceeding half-a-guinea may be taken as a first prize.

Any scientific book which is sold for about five shillings may be taken as a second prize.

W. E. R. Martin.—The destruction of the organic matter should not be resorted to as a matter of course, but merely when no better plan can be adopted. When the poisonous salt can be separated at once from the organic matter it is clearly a waste of reagents to make a solution of the entire mixture.

D. A. S.—You state—"Dissolved a portion of the substance in cold water." This was, certainly, a very clever thing to do, but we do not award extra marks for miracles.

F. F.—It is not improbable that some acetic acid was produced by the operation which you followed to detect this acid. The aqueous solution, however, did not give the slightest indication of the red colouration with ferric chloride; while, on the other hand, it yielded an abundant precipitate with barium chloride.

H. A. K.—Your failure was entirely due to the mistake you made respecting the solubility of the barium chloride precipitate. Had you added barium chloride to the aqueous solution acidified with hydrochloric acid you would probably have formed a different opinion. You added barium chloride first, a considerable precipitate was produced, and on adding hydrochloric acid the part of this precipitate that did not consist of barium sulphate was dissolved.

F. Williams, Junr.—The colour of the aqueous solution should have prevented your error. You must have employed a great excess of water.

S. W. A.—If you examine your hydrochloric acid you will probably find that it contains arsenic. The precipitate produced by hydrogen monosulphide could not possibly have been orange coloured.

J. B.—See remarks to W. E. R. Martin. You do not appear to have tried whether water extracted any foreign matter from the mixture. This is a highly important point to settle.

Embryo.—You must be in a very early stage of development. Make good use of your time before you arrive at maturity, for there is great room for improvement. You will find it a good plan to practise on mixtures of your own preparation.

B. O. W. L.—Iron arseniate would not account for the green colour of the aqueous solution, for it is insoluble in water. You proved arsenic to be absent, yet you decided that an arseniate was present. The property of being present and absent at the same time, if peculiar to arsenic, is not generally known.

Sigma.—You must not depend entirely upon a chart. It is necessary that you should see for yourself the reactions upon which the methods of analysis are based.

Tento.—As you state that ferrocyanide and ferricyanide of potassium gave blue precipitates in the aqueous solution, we must conclude either that you are colour blind, or that you accidentally examined some other substance.

## Pharmacy.

### A MEANS OF DETECTING WATER IN ESSENTIAL OILS.

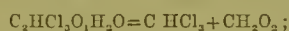
A FRENCH journal states that the addition of several times the volume of petroleum spirit to any essential oil occasions the separation of water in the form of little drops. The oils of lavender, canella, rosemary, sassafras, juniper, citron, and bergamot naturally contain a small proportion; oil of Portugal and oil of gaultheria contain only traces, while the oils of turpentine, cedrat, and rose are or should be anhydrous.

### ON CHLORAL AND ITS COMBINATIONS WITH ALBUMENOID MATTERS.

LIEBREICH's theory that chloral gives chloroform under the action of blood-alkali being rejected in many quarters on the ground that this decomposition is not effected by the alkaline bicarbonates, M. J. Personne has again investigated the subject, and placed the results before the Academy of Sciences of France.

M. Personne finds that not only the strong, but all the feeble alkalies, magnesia, alkaline salts—such as potassium and sodium bicarbonates and the borate and phosphate of sodium of medicine, and all alkaline animal liquids, blood and white of egg, for example—transform chloral into chloroform when the mixture is digested at a temperature of 40° C.

M. Personne also combats the theory that the difference in physiological action between chloral and chloroform is explained by the added hypnotic effect of carbonic acid, produced by combustion in the system of the formic acid, which is a second product of the breaking up of chloral. This formic acid is produced in two ways; first, chloral is split into chloroform and formic acid, according to the well-known equation,



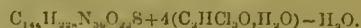
then a varying proportion of chloroform is destroyed, giving rise to a further quantity of formic acid, thus:



so that a complete decomposition of 10 grammes of chloral, a quantity which cannot always be administered to a medium-sized dog, furnishes 5.6 grammes of formic acid. M. Personne has dosed dogs with 10 grammes of dry formiate of sodium, representing 5.83 grammes of formic acid, and has not observed the slightest anæsthetic effect; in all cases the salt was completely absorbed, for it never produced purgation. M. Personne is of opinion that the following fact, which presented itself in the course of his experiments, throws much light on the physiological action of chloral. Fresh blood, to which chloral has been added and kept at the ordinary temperature, is completely coagulated, preserves its red colour, and remains otherwise unaltered. A piece of flesh being placed in a 10 per cent. solution of hydrate of chloral pales a little: there exudes from it a reddish liquid, which soon gives a brick-red sediment. After some hours of immersion, the flesh left at a temperature of 15–20° no longer putrefies; it dries rapidly, assumes a brighter tint, and becomes so friable as to be easily powdered. The dry matter contains chloral, and furnishes chloroform by alkalies. The estimation of chlorine, made on a sample dried at 100° C., gave 8.3 to 8.38 per cent., corresponding to 11.5 per cent. of chloral.

Albumen also combines with chloral; the compound dissolves in excess of albumen or of hydrate of chloral solution, in the same way as the compound of albumen and corrosive sublimate dissolves in excess of either of these bodies. Attempts to obtain this body in a definite form met with but indifferent success—

on one occasion only it had a composition which would be represented by the formula



It is now generally admitted that albumenoid bodies are of the nature of amides; now, since the aldehyds form a class of compounds with these bodies, it is not unreasonable to suppose that chloral, which is only a trichlorinated aldehyd, should be able to form with them analogous compounds. Further, assuming that the action of chloral is due to the chloroform which is eliminated from it, it is very certain that this action differs from that of chloroform by its longer duration. The combination of chloral with albumenoid matters throws light on this difference, which may be explained thus:—The first action of chloral hydrate on the albumenoid matters which it meets in the animal system produces chloroform at the expense of the alkali of these albumenoid matters; at the same time these matters, impoverished or deprived of alkali, enter into combination with the undecomposed chloral, and the compound forms a sort of reservoir of chloroform, which it gives out gradually, in proportion as it is destroyed by the circulation. This fully explains why only a very small quantity of chloroform is found in the blood of animals under the influence of chloral, and justifies the use of chloral in the dressing of wounds as a powerful agent in modifying the tissues.

Chloral may be advantageously used for the preservation of easily putrescible animal substances. A cerebellum was preserved more than a month by immersion in a 10 per cent. solution. The only alteration was a slight increase in firmness. The addition of glycerine to the chloral prevents the hardening which takes place when chloral is used alone, and permits the preservation, under favourable conditions, of many anatomical preparations.

### ON THE ACTION OF CHLORAL ON ALBUMEN.

In this note, which was also submitted to the Academy, M. H. Byasson questions the validity of the conclusions arrived at by M. Personne as given in the preceding article. He looks upon the so-called compound of chloral and albumen as only a mechanical mixture of these two bodies, and such as one would expect to get in consideration of the physical constitution of albumen. This view is supported by the following experiment. He washed the pretended compound with alcohol, a liquid which at the same time that it promotes condensation of albumen has a high solvent power for chloral. The washed substance, when gently dried, has the horny appearance of dry albumen, and gives a white powder. In this condition it contains no chloral; for, in the first place, it does not yield chloroform or any volatile chlorinated compound under the action of strong potash solution; in the second place, when oxidised by nitric acid and subsequently ignited with potassium carbonate, the residue contains cyanide of potassium, and gives only trace of chlorine. With regard to the antiseptic power of chloral, this had been previously pointed out by other savants, though definitively demonstrated by M. Personne. The power possessed by chloral in aqueous solution of easily penetrating the animal tissues, of causing partial coagulation of albumen and the mechanical mixture of a substance inimical to the life of inferior organisms, seems to M. Byasson sufficiently explanatory of the preceding facts. M. Byasson admits that even large doses of formiate of sodium do not produce anæsthesia; but the formiate of ethyl is a powerful anæsthetic, and it can only be argued that this action is dependent on chemical constitution, since acetate of ethyl does not produce it. When chloral or formiate of ethyl act on the system, the formic acid is produced in the blood itself. The decomposition of chloral in the animal body being incontestable, and the triethylacetate of sodium, which under like conditions furnishes chloroform, not having an effect like that of chloral, and ethyl formiate being anæsthetic, it is concluded: 1. that the long duration of the action of chloral, as compared with that of chloroform, is due to the slowness of chemical change; 2. that the difference in physiological phenomena is explained by the added action of formic acid, produced at the same time as the chloroform and acting



special conditions. Again, M. Byasson has found that the reduction of eupro-potassic solution by the urine of persons the influence of chloral is more feeble and less marked than that produced by urine containing an excess of uric acid; whilst chloroform, and especially chloral, cause an abundant rapid reduction, with formate of sodium prolonged ebullition necessary.

#### PRESERVATION OF ESSENCE OF CITRON.\*

addition of two ounces of water to each pound of essence of citron assures its preservation, and the agreeable odour is maintained for many years; the water, in falling to the bottom of the containing vessel, carries with it the mucilaginous matters and favours the resinification of the essence.

#### DEODORISATION OF CARBON DISULPHIDE.

that obstacle to the use of this important body is the disagreeable odour which almost all samples give out, and which is generally objectionable when about to be used in medicine as an anæsthetic.

Yvon, of Alfort, proposes a process which is at the same time rapid, economical, and effective. It consists in the addition of copper turnings to the disulphide. It is not necessary to distill the disulphide soon loses its colour, and has then a mereal odour free from all unpleasantness. Millon has succeeded in reducing copper for the same purpose.

#### EUCALYPTUS IN ENGLAND.

letter to the *Lancet*, Dr. Welsh, of Kinghorn, Fife, states that so far north as that there is a specimen about thirty feet high growing against the residence of Dr. Boswell Syme, the well-known botanist. Its age is upwards of twenty years; and, nearly as high as the one at Powderham Castle, cannot be of the same girth. It bears capsules each year. During the last four years he has tried by seed, cuttings, and layers to propagate it, but in vain. The seeds are not matured so far; but he believes that if the seeds were imported, no difficulty would be experienced in cultivating it to any extent in this country. Another gentleman mentions that he has seen it growing at Edinburgh.

#### CHEMICALLY PURE IRON FOR MEDICINAL PURPOSES.

are indebted to the *London Medical Record* for the following abstract:—It is well known that commercial iron contains sulphur, phosphorus, and arsenic; that hydrochloric acid contains arsenic and sulphuric acid; carbonate of soda and water contain sulphates. These substances, generally employed in the reduction of iron, it is difficult to obtain chemically pure. If they are not removed, the reduction results in the production of sulphuretted, phosphoretted, or arseniuretted hydrogen, forming during the reduction of the iron, sulphides, &c., as impurities. It therefore becomes necessary to purify the hydrogen, and to deprive the water and the water employed of the sulphates they contain. In order to arrive at the first requisite, M. Crolas employs Boussingault's process, which, applied with care, yields perfectly pure hydrogen. The protochloride of iron may be deprived of sulphates by chloride of barium, crystallised separately the chloride of barium there may be in excess, being in distilled water, and precipitating by ammonia (which M. Crolas finds to be free from sulphates). By this washing the oxide is avoided, for it suffices, to remove the hydrochlorate of ammonia formed and retained by the protochloride, to raise it to a nearly red heat. To avoid the formation of oxide, there is arranged between the hydrogen wash-bottles and the reduction retorts an iron tube, which, being filled and traversed by the hydrogen, thoroughly dries the iron prepared by this process is chemically pure, and gives rise to formation of sulphuretted hydrogen while in the stomach.

#### ABSTRACTS OF PAPERS PRESENTED TO THE AMERICAN PHARMACEUTICAL ASSOCIATION.

Our space will only admit of the introduction of a few of these important pharmaceutical contributions at a time. Some of the most valuable, such as, for instance, the elaborate paper of Dr. Squibb on the means of checking the quantity and strength of alcoholic spirits, with a long table, do not admit of abstraction. We shall, however, endeavour to produce most of these papers in a few instalments.

#### SUGGESTIONS TO BEGINNERS IN PHARMACY.

The late Professor William Proctor presented this paper. He first sketched the various circumstances in which lads entering the business are apt to find themselves, and then laid down the proposition that the special knowledge requisite to the apothecary is of four kinds, viz.:—

1st. A practical acquaintance with the implements and apparatus of pharmacy, and with the methods of using them in all kinds of manipulation.

2nd. The intelligent use of this apparatus in making preparations of the Pharmacopœia, so as to adapt it to the nature of the material treated, which involves not only some acquaintance with the physical laws, but also with the nature and composition of drugs.

3rd. The study of the scientific relations of pharmacy as explained in works on chemistry, materia medica, botany, and physics, and a thorough acquaintance with the physical appearance and properties of drugs.

4th. That important part of the business involved in getting medicines ready for the sick, as well on the prescription of physicians, as on ordinary demand by consumers, where a maturity of judgment has to be exercised in regard to the correctness of substances required. The construction of the Latin language, and some knowledge of its vocabulary, is absolutely necessary in this department in many countries, though less indispensable here than abroad.

The first essential to the acquirement of this knowledge is a good preliminary education. In the shop one of the first lessons is to get a practical acquaintance with the labels in the store, in connection with the substances labelled; this is the groundwork of his study of the business, and is essential to progress in other directions. The habit of abbreviating labels on shop furniture and in prescriptions adds much to the trouble of the novice in learning them, and it has sometimes happened that he has never thoroughly acquired the terminations of the words so as to use them with facility. The writer recommends taking a shelf of bottles or row of drawers at a time, the tyro familiarising himself with the names and the articles, and comparing each with the Pharmacopœia and the Dispensatory.

In an establishment where the preparations of the Pharmacopœia are made for its own dispensary, the beginner has a great advantage, as from the first he can witness processes more or less interesting, and which arrest his attention. Though at first only as an aid, or perhaps coming in at the close to cleanse the apparatus, he soon learns enough to be useful. When he becomes conscious of a desire to enter the field of book knowledge, and make it assist his observing faculties, and explain his difficulties, a great point has been gained in his onward progress. Let us suppose his first trouble in washing mortars to arise from Prussian blue, which resisting his best efforts he applies for help, and is told to use solution of potassa, the magical effect of which makes a deep impression on his mind. When evening comes he sets to work with the Dispensatory, at the article Prussian blue, and soon gets at sea in chemistry, which he cannot understand, but he succeeds in learning that potash forms a soluble salt with Prussian blue, and thus detaches it from the porcelain surface, setting oxide of iron free. At the same time he glances at "*Potash*," learns its origin from wood-ashes lye, that it is a *base*, neutralises *acids*, forms *salts*, dissolves *fats* and forms *soap*, and many other facts.

Now it is not to be expected that our young friend has gotten a very clear insight into the chemistry of these subjects, but if intelligent he has seized the leading points, and will not rest

\* "The Pharmacist," vi. 322, 1873.



until all is understood by subsequent study. The habit of close observation of colour, taste, odour, shape of outline, and configuration of parts, should be cultivated as one of the most valuable aids in gaining knowledge, as he progresses from day to day, and by cultivating a habit of using the pencil to imitate the form and construction of objects, whether drugs or apparatus, it will be found to aid the memory decidedly.

The writer then goes on to show how an observant lad will acquaint himself with the characteristics of the drugs with which he meets. Suppose he has to grind up some senna for fluid extract. He watches the leaves and notes their shape. In the evening he refers to his dispensatory, and reads what he can find on the subject. Next time he goes to a wholesale store he asks to be shown a bale of senna, and so, by degrees, he gets fairly posted up in this particular article, a piece of information he will not forget. Professor Proctor then urged the cultivation of habits of cleanliness and order, and frequent practice in dispensing manipulations. But the main feature of his lecture was to impress on beginners the desirability of acquiring habits of close observation.

#### GRADUATED MEASURES.

Dr. W. H. Pile responded to the query whether an improvement could be suggested in graduated measures, so as to obtain greater uniformity. He showed that discrepancies undoubtedly existed, and he urged that, as these could be avoided by more careful manipulation, it lay with the druggists themselves to test their measures by weight. By this means he thought a more thorough accuracy would be ultimately secured. The measures should correspond with weights as follows:—

The fluid drachm, if correct, should contain 57 grains of water by weight; the half-ounces, 228 grains; the ounce, 456 grains; the four ounces, 1,823 grains; the pint, 7,291 grains, &c.

#### PREPARATION OF AROMATIC POWDER.

Mr. Joseph L. Lemberger finds the following method most convenient:—

Crush the ginger and separate the fibre with a coarse sieve, then crush the cardamom and separate the capsule from the seeds, and for this purpose I find a coarsely perforated cullender the best suited, then mix the crushed ginger and cardamom with carefully selected cinnamon bark, and either with an iron mortar and pestle, or drug-mill, reduce to powder that will pass through a moderately fine sieve, then mix with it the nutmeg previously crushed, and pass the whole through the same process of powdering. Nutmeg being very oily, resists pulverisation when manipulated alone, but when mixed with the other ingredients, previously powdered, it acts very kindly. The powders absorb the oil and dry the nutmeg.

#### STRONG POISONS.

Mr. C. L. Eberle read a paper on this subject, but his conclusions presented no new idea. He considered that in the arrangement of a dispensing pharmacy no plan for the better guarding against errors likely to occur from the improper use of poisons has yet been presented than a case or receptacle closed by a door, in some instances kept locked, and the key entrusted to a particular individual. This should be convenient to the laboratory, and of a size sufficient to contain the full stock of alkaloids, narcotic extracts, and such other preparations as are usually denominated poisons.

Each receptacle should have, beside its appropriate label, one on which the maximum and minimum dose of the contents is written. The morphia salts being in constant use may appropriately occupy a separate shelf, and it would be well to classify the remaining substances according to their administrative doses, and distribute their position accordingly. In dispensing, the vials are to be at once replaced after using.

The query may also be supposed to refer still further to a number of preparations usually kept in stock in larger quantities, and which would be harmful if accidentally administered in lieu of milder ones,—the narcotic tinctures, for example. Such should be distinguished by definite arrangement, and the placing of them in parts of the store where the solids are kept.

## Contemporary Opinion.

### PRESCRIBING CHEMISTS.

*The Student's Journal* says that one of the greatest abuses of our profession is the power possessed and exercised by chemists and other persons not properly qualified, of prescribing to patients. They often do a great deal of harm to the patients themselves, besides usurping functions which should belong only to those who have spent time and money in acquiring the skill and knowledge necessary to make them fit to undertake the responsibility of diagnosing and treating disease. In many instances the patients, generally of the poor and ignorant classes, apply to the chemist for advice—which in his case is a course, synonymous with a bottle of physic—for some complaint, and he probably treats the most prominent symptom. The medicine given by one who is not able, probably, to ascertain the malady he is called upon to treat, may do good; but a large number of instances it will not only not effect an amelioration, but will do positive harm. The chemist, alas! at the results of his treatment, advises the patient to consult some regular man. The latter is now taken at a disadvantage, and is called upon to take charge of a case which has grown serious through improper treatment, but which, had he seen at first, he might very likely have relieved in a very short time. Not improbably the patient dies, and the friends, perhaps, show some of reason, lay the blame, if there is any possibility of doing so, on the medical attendant; while the chemist may almost be looked upon as the "fons et origo mali," ex scot free.

The chemists have been made by the doctors, and it is one of the better class of medical practitioners having so largely discontinued the practice of dispensing their own prescriptions that the former have grown into the large and important body they now are. The practice of prescribing is not, we believe, universal among chemists; indeed, we know that some will prescribe, wisely declining to accept the responsibility which would incur by so doing. If chemists generally would act thus, there is no doubt that they would be much better supported by the medical profession than they are at present.

While we are alive to the delinquencies of chemists, we must not shut our eyes to the fact that many medical practitioners' shops for the sale of tooth-brushes, perfumery, toilet soap, hair pomade, in addition to selling medicines at prices at which chemists cannot compete if they keep pure drugs. Prescribing chemists are an evil, but shopkeeping doctors are a disgrace to the profession, and it is scarcely to be expected that chemists will give up prescribing entirely as long as they interfere with their legitimate trade. Until we discontinue our comploting with chemists, we fear that our appeals to them to cease prescribing will not be successful.

### PHARMACISTS AND THE PHARMACOPŒIA.

REFERRING to the recent resolution of the Pharmaceutical Council, urging the Medical Council to give pharmacists a recognised position on any committee for revising the Pharmacopœia, the *Medical Press* remarks:—

"Without entertaining or expressing the least want of confidence in the committee to whom the compilation of the Pharmacopœia was entrusted, we believe that the merits of the work as a practical standard of pharmacy would be enhanced if that committee were afforded the aid of the experience and research of some of the leading pharmacutists. We are willing witness to the scientific treatment which their special receives at the hands of many members of the Pharmaceutical Society, whose investigations and writings on chemistry and materia medica are in many instances quite up to the level of the best efforts of our own profession."

### PHARMACY IN IRELAND.

*The Lancet* points out that the Apothecaries' Company allow, in regard to the important point in dispute, that only a narrow range of study and examination is necessary for chemists and druggists as compared with general practitioners. As they have existed as a medical examining body, it seems to us more dignified and simple that they should leave to others the duty of examining druggists and chemists, and that by far the simplest way of doing this is to make the Pharmacy Acts applicable to Ireland. To create a new society, and then to empower it to act conjointly with an old one which exists for a higher purpose, is to introduce great complexity into a very simple matter. Such a course is not recommended by the present state of the Conjoint Board question in our own profession.



in Ireland. We are decidedly opposed to any further action on Conjoint Boards. We are still of opinion that the Council of the King and Queen's College of Physicians is the best body for improving pharmacy in Ireland.

The *Medical Press* does not regret the delay occasioned by bringing the question to a select committee, if it be intended to make a thorough inquiry into the subject; the more light is thrown upon the present position of the Irish Apothecaries' Society, the more certainly will the desired object—that of bringing an end to the misuse of its legal powers, and placing the control of pharmacy in Ireland in competent hands—be attained. No one, except the majority of the directors of the Society, has anything to fear from investigation; and it is much to be desired that the question should be settled by the House of Commons in the interest of the public, than that it should be decided up by means of a compromise between druggists and apothecaries. We understand that the Irish Chemists' Association has a second time brought the directors of the Hall to terms, and that the *ordre du jour* is, for the present, concord and reciprocity; but we believe it may be conceded that, whatever settlement of the question be eventually attained, the proposed Bill of the Company, which is to adjust the matter in its own interests, is entirely delusive, and will never become law either in this or any other Parliament.

#### THE ADULTERATION COMMITTEE.

The *Lancet* thinks the constitution of this Committee was largely defective, inasmuch as it was formed at the instance of the public, but rather of manufacturers and traders. The evidence of some of the witnesses examined seemed as if its object was rather to palliate and excuse certain abuses more or less in the nature of adulteration than to expose and denounce the whole system. The entire evidence—both the trade and the scientific evidence—has been limited and faulty; and it would appear that there has not been any system or order, or any competent guide to the committee in the marshalling of the evidence and in the selection of witnesses. Some of the principal witnesses who have given evidence have themselves volunteered to do so, or they would otherwise probably have been called at all. Then, as to the constitution of the Committee itself. It includes the names of certain gentlemen identified with trade, and who are manufacturers or sellers of articles the adulteration of which has been the subject of special evidence before the Committee. Without intending to reflect in the slightest degree upon the honour or integrity of these gentlemen, it does appear to us that their presence on the Committee must tend to weaken the confidence in its impartiality. These gentlemen, in fact, occupy on the Committee somewhat the position of judges in a law case. It is no doubt very right and proper that the subject of adulteration should be fully considered from the manufacturers' and manufacturers' point of view; but this should have been done by means of the evidence brought before the Committee. Any one who has attentively watched the proceedings of this Committee, and perused the evidence given before it, but must have been struck with the extremely biased character of many of the questions put to the witnesses, of the one-sided nature of the cross-examinations, and of the paucity of the questions directed to the elucidation of the operation of adulteration as it affects the interests of the public. Unfortunately, the scientific evidence given before the Committee has been of the most unsatisfactory character; one witness flatly contradicting another, and one upholding practices which the next one, prominently and emphatically condemned; and we fear that the result of the evidence, if we except that given by Dr. Hassall and one or two other witnesses, will be, not to help to protect the public from a grievous wrong, but to strengthen the hands of those who are in any way inimical to effective legislation on the subject of adulteration. Before this Committee we have also seen the spectacle of one analyst roundly asserting the incompetence of nearly all his fellow-analysts; this witness by no means aided by the evidence which he gave his own competence to judge in the case, and himself committing some of the mistakes which he charged upon others. It rests with the public, the *Lancet* considers, to decide whether the Act shall in future be rendered more effective and stringent, or whether the efforts of the enemies of effective legislation shall prevail, and the good which has been gained be lost.

The *British Medical Journal* does not exactly approve of Mr. Ford's idea, that the duty of executing the provisions of the Adulteration Act should be left, in respect to drugs, entirely in the hands of the Pharmaceutical Society. The suggestion, says

our contemporary, might be improved upon. Thus the execution of the provisions of the Adulteration Act in respect to butter might be left entirely to a committee of buttermen; of beer and spirits, to publicans; and of sugar, to grocers; and then everyone would be satisfied, except perhaps the consumers. As, however, trade interests are very strongly represented indeed on that Committee, it might be well that some more rational evidence than this should be offered before the Committee, lest perchance such a recommendation should commend itself to the mercantile element of the Committee.

The *Times*, commenting on the committee's report, which it managed to produce three days after some of the penny papers had given it, says that the consoling results announced by the committee will be reassuring to the public, but have been obtained in some instances at the cost of considerable hardship to retail tradesmen. The principle of law is in the main a sound one under which the retail dealer has been held directly responsible for the quality of the articles he offers for sale, independently of any frauds practised upon him by others. He is, in fact, employed by the public partly for the purpose of protecting them against such frauds. It is impossible for the mass of consumers to test the purity of such an article as tea of ordinary quality, and the tradesman makes his profit out of a commission paid him to provide us with protection against our own inexperience. At the same time, if it can be shown that he has himself been a mere agent in administering a foreign or trade custom, it is unfair, though, perhaps, more to the public than to him, that he should be made the scapegoat for the greater offender. The committee think it desirable that when a retail dealer charged with adulterating an article can produce evidence that he bought the article under guarantee from a wholesale dealer, and sold it in the same state as he received it, the magistrate should have power to summon the wholesale dealer as well as the retailer. Some amendment of the law in this sense is probably essential to a just working out of its principle. It is notorious that the publicans are practically obliged to accept the liquors supplied to them by the brewers; and the mass of small retail dealers in other articles are probably not less at the mercy of the wholesale dealers on whom they depend. To punish the retail dealer alone, however much he may deserve it, must be often to let the worse offender go scot free. But, before such punishments can be generally enforced, it will also be necessary to provide more trustworthy means of analysis than at present exist. The conflicts of evidence between analysts discredit the whole operation of the Act, and have, no doubt, in some instances inflicted real injustice. The committee observe that the art of analysis is likely to be greatly improved by experience acquired under the Act, and they recommend that the districts for which analysts are appointed should be sufficiently large to insure them an adequate remuneration. But it is essential that in cases of disputed analyses there should be some court of appeal, and the committee have been assured that there would be no difficulty in establishing such an authority at the laboratory of Somerset House. The Customs officers are willing to undertake the inspection of tea in bond, and an invaluable protection would thus be afforded both to the retail dealer and to the public at large. These alterations may evidently be made without any difficulty; and, with that general extension of the operation of the Act which would naturally follow, we should in a short time have a reasonable assurance that we were protected not merely against poison, but against any material fraud.

The *Grocer* says the recommendations of the committee embody almost everything the trade desire. The grocers have long had a good deal of abuse directed against them by ignorant and malicious people, who have no other way of manifesting their envious spite against those whom industry and integrity have crowned with commercial success. By such evil-minded individuals the grocer has been traduced as the seller of adulterated goods, and even before the present committee one witness, whom it were superfluous to dignify with a name, endeavoured to show that the grocer was guilty of practices which, to say the least of them, could not be compatible with honesty and fair dealing. The sad collapse of this witness, and the melancholy termination of his connection with the committee, are touching illustrations of the fate which awaits him whose recognition of the claims of truth is peculiar. The committee inform the public that, with regard to the food they eat, the purveyors thereof are not "poisoning" them by slow degrees, but sell them a fair and legitimate article, the quality of which is, and must necessarily be, regulated by price.



## CHEMICAL SOCIETY.

Thursday, June 18, 1874.

PROFESSOR FRANKLAND, F.R.S., Vice-President, in the chair. The ordinary business of the Society having been transacted, the papers and memoirs, of which there were a large number, were read. The first was "On the Action of Chlorine, Bromine, &c., on Isodinaphthyl," by Mr. W. Smith. Dr. Armstrong then read four communications from the Laboratory of the London Institution—No. XIII. "On Coal Tar Cresol and some Derivatives of Para Cresol," by H. E. Armstrong and C. S. Field; No. XIV. "On the Action of the Chlorides of the Acids of the Sulphur Series on Organic Compounds," by H. E. Armstrong and W. H. Pike; No. XV. "On Chloro-bromo and Iodonitrophenolparasulphonic Acids," by H. E. Armstrong and F. D. Brown; No. XVI. "Note on the Decomposition of Dichloronitrophenol by Heat," by H. E. Armstrong and F. D. Brown. The sixth paper was by Mr. E. Neison, "On the Products of the Decomposition of Castor Oil: No. III. On Decomposition by Excess of Alkaline Hydrate," in which he has succeeded in elucidating the conflicting statements of various chemists on this subject. 7. "On Hydrogen Persulphide," by Dr. W. Ramsay. 8. "Suberone," by Dr. C. Schorlemmer, F.R.S., and Mr. R. S. Dale. 9. "On the Action of Nitrosyl Chloride on Organic Bodies: Part I. On Phenol," by Dr. W. A. Tilden. 10, 11, and 12. "On an Apparatus for Determining the Amount of Carbonic Anhydride and Moisture in the Atmosphere," "A Method for Determining Ozone in the Presence of Chlorine and Nitrous Oxide," and "On the Constitution of Urea," by Dr. D. Tommasi. 13. "On the Restitution of Burnt Steel," by Mr. S. L. Davies. 14. "On the Action of Earth on Organic Nitrogen," by Mr. E. C. Stanford; and 15. "Aniline and its Homologues in Coal Tar Oils," by Mr. W. Smith. This, the last meeting of the session, was finally adjourned at a late hour until November next.

## THE PLUMBAGO CRUCIBLE COMPANY'S NEW WORKS.

THERE is nothing which characterises this utilitarian age more strongly than the architecture of our large buildings devoted to manufacturing purposes. As a rule they show scarcely any attempt at decoration, and very few of them make greater pretensions to architectural beauty than a county gaol or a penitentiary.

A striking contrast to this merely utilitarian character is exhibited in the new works recently completed at Battersea by the Patent Plumbago Crucible Company—the finest building of the kind in the neighbourhood of London.

The principal elevation, in the Church Road, is in the highly ornamental Italian style, somewhat freely treated. It is surmounted by a square tower, rising to the height of nearly 100 feet, in which is placed an illuminated clock, having four dials of 6 feet in diameter, and the general effect of the building is decidedly continental.

On Saturday last, nearly 150 of the men employed in these works were treated by the company to their annual summer excursion. The men left Battersea in omnibuses, each drawn by four greys (supplied by Mr. Tilling, of Peckham), and about midday sat down to a substantial dinner provided for them at the Cardinal Wolsey, Hampton Court. On the removal of the cloth, the usual toast of "The Queen" was given by the chairman and responded to with loyal heartiness, followed by the "Health of the Firm," drunk with musical honours.

The excursionists were accompanied by the very efficient band started a few years since by the men engaged in the works, which played at intervals during the afternoon, and after the remainder of the day had been spent in various amusements, they all returned home in good time, highly pleased with their day's outing.

We should like to see the example of the Patent Plumbago Crucible Company more generally followed by employers of labour, as we cannot imagine a more effectual method of creating and maintaining a kindly feeling between masters and men.—*South London Press.*

## HUNTER v. FREELAND.

## SUBSCRIPTIONS TOWARDS THE DEFENCE.

THE following subscriptions, in addition to those already announced, have been received on behalf of the fund raised to reimburse Mr. Freeland, Bathgate, for the heavy expenses amounting to 267*l.*, incurred in defending himself in the case of "Hunter v. Freeland," as reported in "THE CHEMIST AND DRUGGIST" for April:—

Messrs. Gardner & Ainslie, Edinburgh	£	s.	d.
Proprietors of "CHEMIST AND DRUGGIST"	1	0	0
Messrs. Clark & Pinkerton, Edinburgh	2	2	0
"T. & H. Smith, Edinburgh	2	2	0
Mr. H. C. Baildon, Edinburgh	1	1	0
"John Mills, Chester	0	10	0
Messrs. Savory & Moore, London	2	2	0
Mr. E. Bentley, London	1	1	0
Messrs. S. Maw, Son & Thompson, London	2	2	0
Mr. Stephen Green, London	1	0	0
"J. H. Cuff, London	0	10	0
"J. Macdonald, Fraserburgh	1	0	0
"W. Duncan, Rothsay	0	5	0
"A. McNaught, Greenock	0	5	0
"T. Wylie, Port Glasgow	0	2	0
"T. Walker, Uddingston	0	5	0
"L. J. M. Campbell, Helensburgh	0	10	0
"Alexr. Halley, Glasgow	0	10	0
"John Henderson, Glasgow	0	10	0
"John Jaap, Glasgow	0	10	0
Messrs. Frazer & Green, Glasgow	1	1	0
"Hamilton & Galbraith, Glasgow	0	10	0
"Murdoch Bros., Glasgow	0	10	0
Mr. John Currie, Sauchiball Street, Glasgow	0	10	0
"Joseph Duncan, Hillhead	0	10	0
"D. P. Walker, Glasgow	0	5	0
"P. Harrower, Glasgow	0	5	0
"Robt. R. Hatrick, Glasgow	0	10	0
"James Taylor, Glasgow	2	0	0
"Wm. Kennedy, Glasgow	1	0	0
"Jos. A. Clarke, Glasgow	0	10	0
Dr. T. D. Moffat, Glasgow	0	5	0
"T. Buelhann, Glasgow	0	5	0
"A. M. Robertson, Glasgow	1	1	0
Mr. A. Reid, Glasgow	0	5	0
"James Inglis, Glasgow	0	2	6
A. Friend, Glasgow	0	2	6
A. Friend, Glasgow	0	5	0
Mr. John Shannon, Glasgow	0	5	0
A. Friend	0	2	6
Mr. Wm. Whyte	0	10	0
"J. Nicol, Partick	0	5	0
"A. Brunton, Partick	0	5	0
"John McMillan, Glasgow	0	10	0
"Wm. Pettigrew, Glasgow	0	5	0
"Wm. A. Ward, Glasgow	0	5	0
"James Mathieson, Glasgow	0	5	0
"John Currie, Eglinton Street, Glasgow	0	10	0
"D. B. Kerr, Glasgow	0	5	0
"George Muir, Glasgow	0	5	0
"John Battie, Dumbarton	0	10	0
"Hunter, Aberdeen	0	10	0
"Stuart, Merchant, Aberdeen	0	5	0
Messrs. Davison & Sim, Aberdeen	0	5	0
Mr. D. M. Mackay, Aberdeen	0	5	0
Messrs. Wm. Paterson & Sons, Aberdeen	0	10	0
"Souter & Shepherd, Aberdeen	0	10	0
"Jas. Sim & Co., Aberdeen	0	10	0
"Forsyth & Co., Aberdeen	0	2	6
Mr. D. A. Mortimer, Aberdeen	0	2	6
"Wm. Wallace, Aberdeen	0	2	6
Messrs. Geo. Reid & Sons, Aberdeen	0	10	0
"C. Davison & Co., Aberdeen	0	10	0
Mr. W. Andrew, Aberdeen	0	2	6
"Jas. Duncan, Aberdeen	0	2	6
"Baillie Hugh Ross, Merchant, Aberdeen	0	10	0
Dr. Johnstone, Aberdeen	0	2	6
Mr. W. Eddie, Aberdeen	0	2	6
"Andrew Gall, Aberdeen	0	2	6
"G. P. Cruickshank, Aberdeen	0	2	6
A. Friend	0	2	6

IN ANOTHER PART of this journal will be found the prospectus of the South London School of Pharmacy for the ensuing session. During the recess considerable alterations are to be made in the laboratory of that establishment. The novel principles of the arrangements are—that the students should all face the demonstrators; that water, gas, and fume-chamber are supplied to each bench, so that the noise of moving about is reduced to a minimum; that all the tables are of white enamelled slate showing at once the least carelessness in spilling, &c.; and that junior and senior students work in distinct laboratories. The accommodation at its maximum is for 80 juniors (minor) and 20 seniors (major). The whole will be finished and opened on September 15. We congratulate the proprietors of this institution on their successful efforts to make their system of pharmaceutical education both thorough and practical.





following list has been compiled expressly for the CHEMIST AND DRUGGIST by L. de Fontainemoreau & Co., Patent Agents, 4 South Street, Salisbury, London; 10 Rue de la Fidélité, Paris; and 33 Rue des Minimes, Brussels.]

Provisional Protection for six months has been granted for the following:—

- F. T. Bond, of Gloucester. The preparation of improved materials for disinfecting and deodorising purposes. Dated April 30, 1874.
- A. V. Newton, of London. Improvements in the preparation of caustic alkali packages. Dated May 6, 1874.
- E. H. Huch, of Brunswick, Germany. Improvements in preserving blood for use as food. Dated May 15, 1874.
- E. Königs and J. Henderson, both of Irvine, Ayr, North Britain. Improvements in obtaining sulphate of soda or of potash, hydrochloric acid and chlorine. Dated May 16, 1874.
- C. A. H. Lindemann, of Radnor Street, Hulme, Lancaster. A new means to be employed for preserving every kind of animal and vegetable matter. Dated May 18, 1874.
- J. H. Kidd, of Wrexham, Denbigh. Improvements in the preparation and application of certain materials for deodorising sewage, night soil, and like matters, and in the manufacture of artificial manures. Dated May 19, 1874.
- W. E. Newton, of London. An improved process for preparing hydrate of magnesia. Dated May 21, 1874.
- A. G. Hunter, of Flint, North Wales. Improvements in treating bones, hornpiths, phosphates, and other materials, in order to obtain products therefrom, and in the apparatus or means employed therefor. Dated May 21, 1874.
- E. C. Prentice, of Stowmarket, Suffolk. Improvements in the production of nitric acid. Dated May 25, 1874.
- O. J. Scholz, of Sand Street, Woolwich. Improvements in machinery for putting capsules on to bottles and other vessels. Dated May 29, 1874.
- A. M. Clark, of London. Improvements in stoppering bottles. Dated June 1, 1874.
- J. Lamont, of Glasgow. A new or improved mode and means of stoppering bottles and other vessels, and construction of stoppers therefor. Dated June 2, 1874.

Letters Patent have been issued for the following:—

- P. Hubert and V. Boissel, both of Bordeaux, France. An improved method of stoppering flasks, bottles, and other vessels. Dated Dec. 5, 1873.
- M. R. Bonju, of Boulevard Sebastopol, Paris. Improvements in the manufacture of oil, and in the apparatus connected therewith. Dated Dec. 8, 1873.
- P. P. E. M. Koch, of Charing Cross Hotel. Improvements in preserving meat and other articles of food. Dated Dec. 11, 1873.
- A. E. Damoiscan, of Paris. Improvements in the manufacture of sesquichloride of carbon and other chemical products. Dated Dec. 13, 1873.
- N. Fellows, of South Hackney. Improvements in feeding-bottles. Dated Dec. 16, 1873.
- A. Ponche, of Montpellier, France. An improved method of and apparatus for the destruction of insects by the aid of steam alone, or mixed with chemical vapours, to be applied to agriculture. Dated Jan. 14, 1874.
- E. F. H. Lucas, of Coatham, Redcar, York. Improvements in the manufacture of anthracene. Dated Jan. 24, 1874.
- A. G. Hunter, of Flint, North Wales. New and improved apparatus for carburetting atmospheric air, and improvements in other apparatus connected therewith. Dated March 13, 1874.
- J. S. McDougall, of Manchester. Improvements in the furnaces used in the manufacture of alkali and other products. Dated April 16, 1874.

Specifications published during the month:—

Postage 1d. each extra.  
1873.

- T. A. Metcalf and another. Manure. 4d.
- J. B. Spence and another. Manure. 4d.
- A. S. Ayre. Compressing oil, seeds, and cake. 1s.
- A. Hetherington. Separating substances of different specific gravities. 8d.

3442. G. Clark. Preservation of animal and vegetable substances. 4d.
3446. T. Dentith. Indigo blue dye. 4d.
3474. C. Stevenson. Furnace for evaporating soda, lyc, &c. 4d.
3540. C. A. Faure. Thermo-electric batteries. 4d.
3572. J. Coxeter. Instrument for the preservation of broken or decayed teeth. 4d.
3573. E. Smith. Removing sulphur from caustic soda or ammonia. 4d.
3615. A. Ray. Dyeing. 4d.
3632. A. C. Fraser and another. Treating and utilising sewage. 4d.
3654. J. Young. Manufacture of muriatic acid. 4d.
4157. J. Oldroyd and others. Dyeing, &c. 8d.



#### BANKRUPT.

ROBINSON, RAWDON BRIGGS, Dulverton, Somerset, surgeon. June 15.

#### ARRANGEMENTS AND COMPOSITIONS.

Notices of first meetings have been issued in re the following estates. The dates are those of the petitions:—

- AUSTEN, WALTER C., 103 St. Mary Street, Southampton, chemist. June 16.
- BOWES, JOHN SYDNEY, Woodhouse Lane, Leeds, chemist. June 22.
- BROADBENT, JOHN, trading as JOHN BROADBENT & Co., Bradford, near Manchester, manufacturing chemist, and Meadow Street, Ancoats, Manchester, coal merchant and drysalter (separate creditors). June 30.
- BROADBENT, JOHN, & SHELMEKDINE, WILLIAM WOODVILLE, trading as GREENHALGH & Co., Bradford, near Manchester, manufacturing chemists. June 30.
- COPE, WALTER HENRY, 1 Broad Green, Croydon, surgeon. June 20.
- DAVEY, ALBION, 21 High Street, Bath, chemist. June 30.
- FREMLIN, WILLIAM H., Banwell, Somerset, chemist. July 4.
- HIRST, FRANCIS O., Pond Street, Sheffield, chemist, and Baker's Hill Sheffield, drug grinder. July 6.
- HIRST, GEORGE, trading as HIRST & Co., 34 Nursery Street and 146 Nottingham Street, Sheffield, druggist and drysalter. June 22.
- HOBBS, DANIEL, 44 Bridge Street, Cambridge, chemist. June 13.
- LINEKER, ELISHA HARRIE, 23 Prospect Street, Hull, surgeon. June 19.
- POTHS, HERMANN, 23 Bevis Marks, and Wilton Terrace, Camberwell Grove, chemists' sundryman (separate creditors). July 3.
- POTHS, HERMANN, and SEMPLER, EDWARD, 23 Bevis Marks, chemists' sundrymen. July 3. At Guildhall Tavern, Gresham Street, July 20, at 2.
- RILEY, WM. FIFTH, Brighthouse, Halifax, manufacturing chemist (separate creditors). June 16.
- RILEY, WM. FIFTH, and HORNER, JAMES READ, Brighthouse, Halifax, manufacturing chemists. June 16.
- SEYMOUR, HENRY, Okehampton, Devon, chemist, grocer, and manure merchant. June 22.
- SHELMEKDINE, WILLIAM WOODVILLE, Bradford, near Manchester, manufacturing chemist. June 30.
- STILES, EDWARD MARSH, Lawn, Merton, Surrey, surgeon, late Welshpool, assistant, prev. Chester, gentleman. June 23.

#### DIVIDENDS DECLARED.

- HORNEY, ALFRED T. (liq.), Tuxford, chemist. 1st and final div., 2/4; G. Jay, 8 Bark Street, Lincoln.
- TAYLOR, THOMAS (liq.), Bloxwich, chemist. 1st and final div., 3/2; D. W. Lees, Valsall Street, Willeuhall.

#### PARTNERSHIPS DISSOLVED.

- HORNE & MILNES, Barnsley, chemists. May 1. Debts by Edward Horne.
- JARMAIN & FROST, Kidroyd, Almondbury, Huddersfield, chemists and bleachers. Apr. 28. Debts by George Jarmain.
- MILLS & ORTON, Stockport, chemists. Apr. 28. Debts by William B. Orton.
- MITCHELL & FRASER, 19 Church Street, Inverness, chemists, druggists, and dentists. May 26.
- NEWTON & MADGE, Upper Winpole Street, surgeons. June.
- WARD & Co., Richmond, Yorks., chemists. Dec. 31. Debts by George Robert Walton.



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All Advertisements intended for insertion in the current Month must be sent to the PUBLISHER OF THE CHEMIST AND DRUGGIST on or before the 12th, except Employers' and Assistants' Advertisements, which can be received up to 10 A.M. on the morning previous to publication.

Subscribers are requested to observe that the receipt of THE CHEMIST AND DRUGGIST in a *Green Wrapper* indicates that with that number the term of subscription has expired, and that no further number will be sent until the same has been renewed. We issue the notice very respectfully, not that we distrust our Subscribers, but simply because we find it impossible to keep an immense subscription list like that we now have, extending to almost every town in the world, in order, without an exact system like this.

Terms for Advertisements over the Leaders may be obtained on application to the Publisher.

#### FOREIGN AGENTS.

ADELAID	Messrs. Paulding and Co.
AUCKLAND	" Kempthorne, Prosser, and Co.
BOSTON, U.S.	" Office of "Boston Journal of Chemistry."
CALCUTTA	" Bathgate and Co.
CHICAGO	" W. A. Weed and Co.
DUNEDIN	" Kempthorne, Prosser, and Co.
MELBOURNE	" Felton, Grimwade, and Co.
MONTREAL	" Evans, Mercer, and Co.
NEW ORLEANS	" E. J. Hart and Co.
NEW YORK	Mr. P. M. Sherwood, 117 John Street.
PHILADELPHIA	" W. M. Dickson, 619 Walnut Street.
SAN FRANCISCO	" Messrs. Bancroft and Co.

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J. ALFRED WANKLYN, M.R.C.S., London,  
Formerly Professor of Chemistry in the London Institution;  
Joint Author of a Book on Water Analysis, and of the  
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### THE ADULTERATION ACT COMMITTEE'S REPORT.

AFTER a very comprehensive investigation, the Select Committee appointed to inquire into the working of the Adulteration Act has published its report. Among the 57 witnesses which have been examined, all parties interested have been fairly represented, and it is only just to admit that the report indicates generally on the part of the committee an honest appreciation of the difficulties and annoyances which the Act has occasioned. As this report cannot fail to be the basis of future legislation in regard to adulteration, which legislation, by the way, can hardly be expected before next session, we may well look a little closely into it, so as to see what are our prospects.

The first point which must strike a chemist and druggist looking through this report is the fact that no allusion whatever is made to drugs. From this it may be presumed that the committee did not conclude, from the evidence presented to them by the representatives of our trade, that a case of sufficient hardship had been made out to be worth mentioning. If this be the case the committee has certainly wronged us; it is true that the convictions of chemists have been but few in comparison with those of grocers; but it is equally true that according to the Act as it now stands all chemists are in continual danger of its penalties, and are dependent entirely on the amount of perception which the magistrate may chance to be provided with. The recent scammony case is a good illustration of the troubles to which any chemist is liable, as well as of the dilemma in which a magistrate is placed with the Act before him, and beside it a full explanation of the circumstances. In the instance to which we allude the chemist proved that he had sold the best scammony which he could obtain in the market. Another time it might be a little better, or it might be a little worse; or it is equally conceivable that on another occasion the court might interpret the Act more strictly, or a case might be less ably defended, and a druggist might be severely and unjustly punished. We adduce this prosecution merely to show that the Act is extremely defective in so far as it refers to drugs. We recognise that the public have a peculiar right to demand a rigorous check on those who supply medicines. Perhaps it is the difficulty of devising such a check which shall not "needlessly hamper or fetter trade" that accounts for the absence of any reference to this part of the operation of the Act in the report. We have heard, indeed, that in the first draft of their



At the committee introduced some suggestions in regard to teas, which if acted upon would have made our next condition better than our present. Any way, it is evident now that as long as we are concerned we must take care of ourselves. It will be well, if it be possible, before the subject comes before Parliament, for the trade to agree on some definite proposition which will be fair towards themselves and a sufficient protection for the public. We may believe that a reasonable scheme will be readily accepted, and incorporated in the next Act.

The grocers have fought their battle well, and seem to have gained every point. The committee gives to their hardships an almost unbounded sympathy. Obliquely they condemn the decision of the Court of Queen's Bench in regard to faced teas, and they most emphatically support the suggestion that teas should be examined in bond, which it seems the Chairman of the Committee has now discovered to be perfectly practicable. The whole of the section on tea is alive with anti-Whitworthism.

The paragraph entitled "mixtures" is almost startling by its straightforward common sense. The committee has appreciated the position of the shopkeeper, and does not think it needful that he should deliver a speech on every occasion that he vends starch or cocoa, to the infinite alarm and astonishment of his customer. "The sale of such mixtures, or compounds, is allowed, and, indeed, needful to meet the public requirements, provided the fact of their being mixtures is plainly indicated to the purchaser by a legible label, or notice, conspicuously attached to the outside of each package in which, or vessel from which such mixture is sold. *A verbal declaration at the time of sale is impracticable, and if practicable would be unnecessary if a proper label is used.*"

Corn-flour, no doubt, owes the honour of a special section to the attack of its learned assailant, Dr. Bartlett. That gentleman's physiological researches are most decidedly sat upon, and the anger is the committee in its desire to counteract erroneous impressions and diffuse useful information, that we are assured that "corn-flour is perfectly wholesome," but, adds the reporter, with a thoughtfulness which does honour to his paternal instincts, "it should not in any case be given to infants without a considerable admixture of milk." If the committee does no other service than disestablish wind on babies' stomachs it will have existed in vain.

The general conclusions of the committee are well worthy of consideration, but our space will admit of nothing further than a summary of them at the present moment. They think the option of the Act should be made compulsory, that provision could be made in all cases for the appointment of analysts fully competent to discharge their difficult duties, and that a proper remuneration should be assured. They think that in all cases the accused "and his wife" should be permitted to give evidence. They propose that a magistrate should have power to summon a wholesale dealer, if the retailer produces sufficient evidence that the adulteration does not lie with him. They would allow an analyst's certificate to be taken as evidence, but would give defendants the right of demanding the attendance of the analysts. They suggest the establishment of a competent court of appeal in cases where analysts are at variance, and they indicate the laboratory at Somerset House as a suitable establishment for such a task. They would also permit an analyst to use his discretion in certain cases, allowing him not to give a certificate when he did not find articles really adulterated or debased.

The committee concludes with the expression of its belief that, after hearing all the best evidence of the country on the subject, there is no reason for any alarm. At the worst, the public are cheated rather than poisoned. It seems to us that, on the whole, the committee has executed a difficult task with great ability, and is entitled to the thanks both of the public and of the various trades interested.

## IRISH PHARMACEUTICAL AFFAIRS.

IF there is to be a settlement of the present confused state of affairs in Ireland, we suppose it may safely be said that we are nearer to that issue than we were last month; but assuredly it does not seem as if such were the case. The position of affairs at the present moment stands like this. Mr. Errington, the Home Rule Member of Parliament for West Meath, has introduced into the House of Commons the Pharmacy Bill drawn up by the Dublin College of Physicians. To anyone not particularly interested in any school or clique this Bill seems as simple, straightforward, and practical a piece of legislation as any that could be devised. Its effect would be to extend the pharmacy regulations of Great Britain to Ireland. It also provides that the Pharmaceutical Society should establish a branch examining board in Dublin. There is one slight defect in it, which is probably an oversight, and which could be easily remedied. It makes no provision for the existing chemists and druggists of Ireland to be admitted to the new privileges on any terms except those of pure outsiders. At the most a modified examination only should be required of these gentlemen. This Bill has been read a second time, and then referred to a select committee. If the navigation were perfectly easy, this arrangement would mean a postponement till next Session, which, in its turn, may mean anything. But the Bill is threatened with all sorts of perils and difficulties. The Dublin Apothecaries' Company, resolved at any rate to die hard, comes forward with a draft bill, which will be fortunate if it can get any member of Parliament to act as sponsor for. Strangely enough the Chemists and Druggists' Society of Ireland, which one might have thought, after their past experience, would have declined again to listen to the voice of the charmer, has been wooed not merely into silence, but even to an active support of this ingenious draft bill of Dr. Leet's. Naturally, this alliance gives the apothecaries a singularly powerful position. They say, here is a bill which both apothecaries and druggists, the only parties actually interested in the matter, have agreed upon: we, the old established apothecaries, boiling over with generosity, and seeing a chance of blessing our beloved country, offer all these concessions of our rights. The druggists are satisfied, there is every guarantee for the public safety: why should the College of Physicians interfere to spoil this happy harmony? Short, not Collins, is Ireland's friend. On the surface, the point in which the Apothecaries' Bill differs from that already introduced is merely that the former, instead of combining the pharmacy of the whole United Kingdom under one society, proposes to establish a special Pharmaceutical Society for Ireland, modelled after the one in Bloomsbury Square, but to be independent altogether of "the hated Saxon." This tempting little bit of Home Rule policy is too attractive for Irish good sense, and it is rumoured even that Mr. Errington looks with an envious favour on that feature of the Opposition scheme.

With this condition of affairs before it, the Select Committee commenced its labours on Thursday, the 9th inst., by examining Dr. Leet, the secretary, and Mr. Collins, the manager of the Apothecaries' Hall, Dublin; and Mr. Hayes, the secretary of the Chemists and Druggists' Society of Ireland. Naturally, the representatives of the Hall gave evidence in opposition to Mr. Errington's Bill. Mr. Hayes also supported the other two gentlemen. The chief argument put forward in favour of an independent society was that by that means a better prospect of the establishment of a school of pharmacy in Dublin was anticipated.

On Monday last Mr. Sandford, Mr. Mackay, and Sir Dominic Corrigan were examined. The first gave evidence as to the constitution and method of procedure of the British Pharmaceutical Society. He said that he had no doubt the Society would be



willing to undertake the task, but that there was nothing for them to gain from it. He described the examinations, and read Dr. Greenhow's report of them. He also showed that after 1876 a certificate of three years' service in actual dispensing would be demanded of every candidate. Mr. Mackay, of Edinburgh, explained the position of Scotland as a branch of the Pharmaceutical Society. He was of opinion that Scotland had always had a sufficient voice in the Council of the Society, and might have had more influence if it had not been for the natural modesty of his countrymen. He considered that Irish chemists and druggists in business should be required to pass only a modified examination. Sir Dominic Corrigan, M.D., President of the College of Physicians, argued very warmly in favour of an independent Pharmaceutical Society. He saw no advantage which would result from the union, although he would advocate a single register for the two divisions of the kingdom. Somewhat racily, but with the most superficial acquaintance with the circumstances of the case, he urged that the Pharmaceutical Society of Great Britain spent its income most extravagantly. He instanced one or two items in the last financial statement. There was 219*l.* for the *conversazione* at South Kensington; what good would that be to Irish members? Also, 206*l.* for "house expenses," and 98*5l.* for the cost of "journal." A single enquiry of a competent person would have shown this gentleman that he had completely misapprehended this last item, but we suppose Sir Dominic Corrigan's high position absolves him from the necessity of ascertaining circumstances before giving evidence. In the statements quoted the journal account is credited with no part of the 4,000*l.* paid for subscriptions, though, as a matter of fact, the greater part of this sum is subscribed expressly for the journal. Sir Dominic gave strong evidence to show the necessity for some legislation. He especially instanced one union in which there were six towns, in none of which existed anyone who dare dispense a physician's prescription under a penalty of 20*l.*

We do not believe for a moment that Parliament will sanction the institution of two separate societies, even if all the Irish members urge it. But the demand for an independent status of that kind seems to us puerile and impolitic. The Irish chemists have far more to gain from union than we have. They would get an organisation provided for them to hand, and they would also have the great advantage that by passing the one examination the whole of the United Kingdom would be "before them where to choose their place of rest," and we can hardly doubt that Providence would guide more of them to our shores than that we should swamp them, tempting though the Irish landscape no doubt is. Sir Dominic Corrigan, it is true, with a genuine Celtic shrewdness, would both have his cake and eat it, by the scheme of a single register; but this is hardly a fair demand, and it is not likely to be conceded.

At the eleventh hour we understand the Irish druggists have discovered a flaw in the Apothecaries' Bill which they not unnaturally attribute to the same fatal tendency which caused them to suspect their allies once before. According to the scheme the Apothecaries' Hall was to appoint only four examiners, while the proposed society would nominate eight. This seemed fair; but another clause further on gives any apothecary the right of joining the said society by payment of a guinea. Evidently it would at any time be in the power of the company to swamp the druggists completely. We hear also that the representative of the druggists has considerably altered his views since this discovery, and partly, too, in consequence of his inspection of the means of the Pharmaceutical Society here. We have also a telegram from Dublin announcing that the same causes have induced the committee of the Chemists and Druggists' Society of Ireland to modify their views, and that they would now coincide with Mr. Hayes in support of Mr. Errington's Bill.

Such is the present situation, and so it is likely to remain until next session. The opportunity of uniting the pharmacy of the two divisions of our country is too good to let pass, and we hope that in both countries those who desire this result will strive for it heartily and honestly, as regardless of sentimental fancies as of the commercial interests of a crumbling medical dynasty.

#### MR. MUNTZ, M.P., ON THE DRUG TRADE.

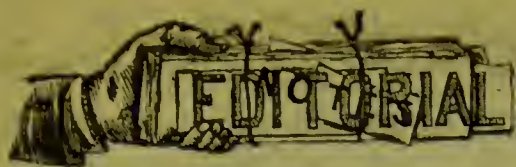
WE remarked last month that Mr. Muntz, M.P., the author of the Adulteration Act, appeared to be somewhat over-superstitious in regard to the dishonest practices of tradesmen generally; and we founded our opinion on certain questions which that gentleman, as a member of the Select Committee on the Adulteration Act, had put to some of the pharmaceutical witnesses examined before him. Judging from these questions, it appeared that Mr. Muntz believed in the existence of an extensive and regular system of adulteration of medicines; in a persistent demand for such inferior medicines throughout the provinces, and still more in the colonies and foreign countries in the existence of certain mysterious manufactories established expressly to supply that demand; and finally, and consequently upon these other articles of his creed on the subject of medicines, the honourable gentleman seemed to regard it as next to impossible to get a prescription dispensed with anything like accuracy anywhere but in London.

Mr. Muntz has written us a letter, which we print in another column, and which the reader will naturally expect is intended to disclaim the interpretation of his views which we had put upon his questions; but it appears to be quite the reverse. Not only does Mr. Muntz avoid a denial of the possession of such views as we attributed to him, but he emphatically repeats the substance of them. He considers it is true that only a small percentage of tradesmen generally are dishonest, but it would hardly seem as if he extended that charitable view to provincial and colonial druggists. Evidently they as a class have been, at least until recently, in the habit of supplying their stocks with inferior drugs, and Mr. Muntz has "reason to believe that for export the practice still continues." Country druggists, it appears, have improved morally in consequence of the Pharmacy Act, though how that Act has affected them in this respect would perhaps puzzle Mr. Muntz to declare.

We protest most earnestly and seriously against this unjust inference of general laws from insufficient evidence on the part of a critic in the influential position of the Member of Parliament for Birmingham. Mr. Muntz "was not aware that any chemist or druggist had been prosecuted under the Act of 1872," and yet he is so familiar with the practices of the trade that he can reveal secrets which are utterly unknown to men who have been actively engaged in it for a quarter or half a century. What may we presume from this? Not unnaturally that the vague generalisations with which Mr. Muntz has favoured the world are worthless; that they are founded on isolated facts, which may be disgraceful enough in themselves, but which it is simply unreasonable to describe as "practices." A medical man speaks slightly of country druggists; forthwith Mr. Muntz "has reason to believe" in the universal depravity of that class of men. Or a case of selling adulterated drugs by some wholesale house comes to his knowledge, and immediately "the practice is notorious." And yet when we observe the maintenance of these illogically conceived opinions and conclude that their author is too ready to believe in the fragile integrity of the trade, we are told that our statement is "without foundation."

We readily perceive that Mr. Muntz's wide commercial experience *ought* to have led him to more reasonable ideas in regard to trading outside his own line. Whether it has or has not had that effect is, however, exactly the question at issue. If not, then clearly the opportunities of forming a better judgment which have been thrown away do but aggravate the offence of these hasty and unjust conclusions.





## THE TROUBLES OF A PHARMACIEN.

A curious case is reported in the Paris journals as having been recently tried before the Civil Tribunal of the Seine. The narrative laid before the Court for judgment was as follows:—

Condouin held, in 1871, two houses adjoining each other, one in the Rue St. Antoine, the other in the Rue des Tourelles. At that date he let a shop in the house of the Rue des Tourelles to M. Sers, a pharmacien, on the condition that on these premises he should carry on no other profession than that of a "pharmacien druggist." Shortly after he let the *entresol* of his other house to a M. Grandcollot, a bandagist—that is, a band and bandage maker—this time engaging himself not to let any tenant whose business was of a similar character. Since M. Condouin has gone out of the history, and M. Calami has taken his place in his stead. Against the latter gentleman M. Grandcollot brought an action, on the ground that his neighbour the pharmacien sold bandages, and considerably interfered with his (the plaintiff's) business. The bandagist claimed 2,000 francs for past injuries, and 10 francs for every day's delay. M. Jules Favre appeared for the plaintiff, and tried to make it appear that customers intending to come to M. Grandcollot were very likely to go to the pharmacy in mistake, where they always got served. He also urged that by no means could bandages be regarded as pharmaceutical products. M. Calami's advocate depended chiefly on the fact that M. Grandcollot had taken his premises after the pharmacy was there, and therefore that such competition as that offered could not have been supposed to be within the terms of the agreement. M. Sers on his part maintained that, in selling bandages and such articles, he was only following a very usual custom among the pharmaciens of Paris, and that no unfair competition could be charged against him. The tribunal at last gave judgment for the defendant, and condemned M. Grandcollot in costs.

## THE COMET.

A beautiful visitor from the unknown regions of space which is now careering through our planetary system affords to astronomers the first really promising occasion of investigating cometary nature by means of the spectroscope. Mr. Norman Lockyer writes an article in last week's *Nature* in which he remarks that the comets of 1858 and 1861 came in prespectroscopic days. Those which have appeared since have hardly been brilliant enough to give any definite results. Mr. Lockyer sums up how much, or rather how little, is known of the chemical composition of these bodies, and he shows, too, that spectroscopic observations are not so perfectly certain, at least in their negative results, as is sometimes assumed. It is now conceded that a different molecular arrangement of the same element may produce different spectra. Observers of recent comets have not been able to agree on the position of the lines in such spectra as they have obtained. Mr. Lockyer himself speculates, on necessarily slender bases, that the nucleus of a comet is incandescent, but of low temperature. This supposes a different condition of physical effects to that to which we are accustomed, but the speculation is itself an indication of the elementary state of our knowledge on the subject, and shows, too, how much in scientific results an inquiry into the nature of comets may prove to be.

## ALTERATIONS IN COUNTY COURT PROCEDURE.

A BILL has run through the House of Lords within the past month, introduced by Lord Cairns on June 16 and read a third time on June 24, the effect of which, in one or two respects, may be somewhat important. Not a single word of discussion has been reported on any stage of the bill, consequently it is only just now that the commercial community has heard of its existence. The first section provides that for amounts exceeding 5*l.* a plaintiff may, if he please, serve a new kind of summons on the debtor, which will require the latter to give notice of his intention to defend the case, if such be his desire. If he give no such notice judgment will go against him by default, and after a certain time may be executed. This is a similar mode of procedure to that adopted in the Lord Mayor's Court, which, however, is applicable only to the city of London. Personal service of the summons will be required, but the saving of time both to the courts and to plaintiffs will be very material. A second important feature of this bill is that one of its sections will give judges the power to obtain the services of one or more persons of skill and experience in the matter to which the action relates, who may be willing to sit with the judge and act as assessors, their remuneration for so acting to be at such rate as may be prescribed, and to be costs in the cause, unless otherwise ordered by the judge.

This latter section is an approach to the idea of tribunals of commerce, which have been so strongly desired by some men of business as a practical means of sometimes avoiding expensive litigation.

## HOW DR. HASSALL WOULD LEGISLATE.

IN the last number of his journal, *Food, Water, and Air*, Dr. Arthur H. Hassall puts forward his views *apropos* of the amendment of the Adulteration Act. Briefly, Dr. Hassall's plan is to divide the country out into a certain number of good sized areas, over each of which a well paid analyst is to be appointed, who is to be almost the absolute ruler of his district in matters concerning adulteration. He considers it exceedingly important that the principle laid down by some of our judges should be maintained, that the person selling an article should be held to have the knowledge whether it is genuine or not. If he has no such knowledge, he can hardly be held to be competent in the business whereby he lives. The certificate of an analyst, Dr. Hassall thinks, ought to be accepted as evidence, his personal attendance not being demanded. The select committee has followed this proposal, but with the important proviso, "unless demanded by the defendant." Naturally, if the defendant should not demand the analyst's attendance, no one else need trouble about it. That Dr. Hassall assumes the Adulteration Act to be a provision for analytical chemists is evident from his reason for disapproving of the establishment of an independent board of analysts who should examine any suspected article sent to them; he thinks it would discourage the pursuit of analytical chemistry in this country by making it a monopoly in the hands of a few persons. With charming charity, the doctor believes the contradictory evidence of scientific witnesses to be far less frequent than is commonly supposed, the reports, we presume, being either inventions or delusions. Finally, and consistently, we have the cool assurance that, in Dr. Hassall's opinion, "the institution of any separate Court of Appeal, to which all disputed cases of adulteration should be referred, is unnecessary, and that it would be a slur alike on the competence and integrity of the analysts of this country." Not exactly, for, with exceptions, their competence and integrity have not been so obviously manifest.



## MENS CONSCIA RECTI.

THE *Medical Press* thinks fit to give a place in its columns to a would-be sensational article copied from an American source, the tone and veracity of which are sufficiently indicated by its opening sentence, which asserts the writer's belief "that four-fifths of the dandelion used in America of late years is chicory." For ourselves we doubt whether dandelion ever is chicory, but that is not what the writer means. What he does wish to convey is not of much importance, as a man who believes, or says he believes, such obviously ridiculous *canards*, is not capable of forming an opinion of any value at all. But we have to complain of our usually friendly contemporary the *Medical Press* in adding to its quotation an attack on ourselves as ungenerous as it is unjust. The editor writes:—

"We suppose we shall be told by the English drug trade journals that all this is 'in the way of business,' and that our purism is ridiculous and behind the age, and that extract of chicory and fir refuse is a proper and honest article of merchandise, because it cannot be shown to be poisonous. Our old-fashioned code of morality holds that the manufacturer who makes up such a preparation, and the druggist who sells it knowing it to be false and fraudulent, is neither more nor less than a swindler, and ought to be dealt with as such by all honest people."

As ours is the only paper which can be exactly described as an "English drug-trade journal," there can be no question about the application of this paragraph; but we are fully conscious that there has never appeared a line in our columns which would justify the unpleasant insinuation thrown out by our contemporary.

## COMFORT FOR THIRSTY SOULS.

DURING the period of slow cremation through which we are passing this month, at least in London, it may be of interest to know the best means of satisfying the cravings of thirst. M. Bertherand, writing in the *Gazette Medicale d'Algerie*, gives as the result of his experience, and that of others who have inhabited warm climates, the opinion that a lukewarm liquid appeases thirst and *extinguishes* it much sooner than a cold drink. He strongly recommends a thin infusion of tea, or better, some lukewarm coffee, which he says should be taken by small mouthfuls and drunk slowly. He thinks the addition of a few drops of some spirituous liquid is an improvement. In the same article, speaking of ices and iced sherbets, he says that in 1822, and from then to 1825, when the fashion of taking these was first propagated in Paris and the other large towns of France, sudden deaths were so frequent after them that an idea of poison spread among the public. The establishments where the ices were prepared were watched, but nothing was discovered. Dr. Bertherand has no doubt that the deaths were the result of the sudden application of the low temperature.

A HILL OF SULPHUR.—One of the most remarkable deposits of native sulphur as yet discovered is a great hill composed of the almost pure article, found some two years ago at a distance of 30 miles south of Union Pacific Railway, and 900 miles west of Omaha. This marvellous deposit is found to consist almost wholly of sulphur, containing only 15 per cent. of impurities. The best deposits heretofore available are those found in Sicily. The principal supplies for the manufacture of sulphuric acid come from there; the deposits contain 35 per cent. of impurities and 65 per cent. of sulphur. Our Western sulphur hill, therefore, is much the most valuable, and promises to become ere long of great importance to the country.—*Tennessee Pharmaceutical Gazette*.



## THE ART OF DYEING AND CALICO-PRINTING.\*

THE new work by the accomplished editor of the *Chemical News* cannot fail to add largely to his already high reputation. The immense revolution in the practice of dyeing which modern chemistry has created by the introduction of the aniline colours, the artificial production of alizarin and ultramarine, and other great discoveries, has displaced to a great extent all the old manuals of the art. At the same time this art is so intimately associated with the manufacturing supremacy of Great Britain, that a tolerably complete compilation of its multifarious processes is a most essential requirement. The volume before us contains over 700 pages of small, but beautifully clear type, and comprehends a mass of information such as can only be obtained from a whole library of books in various languages, and much more than this also. It treats of the various dyeing operations of cotton, linen, wool and silk; it describes the manufacture or preparation of all the materials employed for the production of the various tints; it explains as far as can be the scientific theories of the processes described; and above all it includes an immense number of practical working formulæ, which will save dyers years of experiments and failures. This is sufficient to make the book a most important one; but its value is fully doubled by its illustrations. Besides well executed engravings representing dye-works and special processes, which a practical man can comprehend better by one such drawing than by a hundred pages of descriptive writing, there are included in the book forty-seven specimens of cloth dyed or printed according to methods detailed in the text. This is a feature at once novel and striking, and the value of which will be readily recognised by those who work from this manual.

So prominent is the technical excellence of this work, that a critic might almost pass by unnoticed its interesting literary and scientific character. This, however, should be remarked upon. In introducing his subject, Mr. Crookes gives us a history of dyeing which is most entertaining literature, and there are many other portions of the book which can be separated from the purely business part. The history of the aniline discoveries is especially to be noted; a descriptive account of nearly all the substances employed is interwoven with the more technical instructions; and we may also mention the description of the most interesting and not very widely understood art of calico printing as being a remarkably clear and instructive account, aided as it is by many of the material illustrations to which we have already referred. At the end of the book a chapter treats on the detection of dyes, and the author has also compiled a list of the various treatises, scattered among English, French and German scientific publications, which may be referred to as the original accounts of the investigations into this science. These treatises are classified and indexed.

This handbook deserves, and will assuredly command, unqualified admiration. It is a monument of Mr. Crookes' ability and industry, and not less of the enterprise of the publishers.

## DR. PAVY ON FOOD.†

Dr. Pavy, whose authority on the therapeutics of digestion is beyond question, has produced a somewhat massive volume, in which he treats both scientifically and popularly on the nature and action of our various foods. We are not disposed to think that the happiness of the world has been materially increased by the multiplication of these investigations. Beyond all doubt, the subject is one which, when new, has a special fascination both for students and *dilettanti*. Speculative philosophers have amused themselves and alarmed their readers by tracing the development of mental power to the cabbages consumed; materialists and physiologists are delighted with the discovery that the human body is a sort of amateur steam engine, in which so many grammes of albumen will produce so many foot-pounds of force; while chemists and physiologists have devoted their lives, and, like Dr. Pavy, "largely consumed the midnight oil," in order

\* A Practical Handbook of Dyeing and Calico-printing. By WILLIAM CROOKES, F.R.S., &c. London: Longmans.

† A Treatise on Food and Dietetics, physiologically and therapeutically considered. By F. W. PAVY, M.D., F.R.S. London: Churchill.



enlighten their less eager brethren on the processes of decay which are ever active within us. Meantime our dinners are richly spoiling. We look on those dishes which once brought a sparkle to our eyes, and the water to our palates, and they harm us no longer. Like the wise man, we have schooled ourselves to turn from the wine when it is red within the cup, and we have gone even a step beyond him, for we have now written on the portals of our dining tables the universal sentence, *vanitas vanitatum omnis vanitas*. In a little while there will be nothing for it but to resign ourselves to "dietaries," calculated for us with mathematical nicety, to furnish so much heat, so much fat, so much blood, so much muscle, and unending life.

Dr. Pavy is certainly somewhat lugubrious company for a dinner party, that is, of course, in the capacity in which he now presents himself. It would seem that after we leave our first food we are never safe. Our meat is probably indigestible, but that is a small matter. It is liable to three conditions, on which the author expatiates with obvious enjoyment. It may contain parasites, enjoy an infectious disease, or be contaminated by some drug or other noxious agent consumed during life. Those parasites are born about 500 at a time when they reach the stomach. They seem to be of an inquiring disposition, for their first act of intelligence is to "pierce the walls of the intestines, pass through the peritoneal cavity, and spread themselves throughout the body," with consequences more or less horrible. Some are let off with some friendly remarks. Fish may be poisonous, and does not very fully satisfy the appetite, but some kinds are worthy of a good word. Shell fish, however, is likely to produce nausea, vomiting, colic, cramps, and purging, eruptions of the skin, paralysis, coma, convulsions, and sometimes death. Milk, in a normal state, is, of course, wholesome; but the Germans have discovered plenty of dangers even here. Condensed milk is tempting from its sweetness, but Dr. Parry is careful to quote, though without exactly endorsing the assertion, a medical statement to the effect that its results are delusive. According to this it produces fat only, and the poor baby soon sinks into nothingness. When we get to drinks, of course the dangers are multiplied alarmingly. Water drinkers are no better off than wine bibbers, but it must be acknowledged that the author speaks kindly enough of wine, beer, and spirits.

But our readers will be tired of this sort of analysis. Suffice it to say that Dr. Pavy proceeds through the whole range of substances of food, and carefully points out the dangers of all. We do not deny the value of such a work. We recognise and willingly admit that the author has more ably than any other English writer with whose work we are acquainted, edited and summarised the conclusions of the many German chemists who have investigated this subject. All the medical world will welcome, too, the appearance of a volume in which so eminent an authority as Dr. Pavy has recorded his observations and opinions on therapeutic dietetics. On the whole, in spite of the gloomy impressions which it is likely to convey to the general reader, the book is one of considerable value and importance.



#### MR. MUNTZ, M.P., ON THE DRUG TRADE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—I have been favoured with the copy of an article in your paper in which you say "Mr. Muntz has no faith in the moral honesty of tradesmen; he has made tricks of trade a study." Considering that for more than half my life I was deeply engaged in commerce, that I have paid millions for goods exported which I had never seen, trusting entirely to the honour and honesty of those from whom I purchased, and having had but rarely cause to regret the confidence I reposed, I cannot but think your statement without foundation.

Far from believing all tradesmen to be dishonest, I am convinced that only a *small percentage* are so, and it was to protect the honest men, and also the poorer classes, against the tricks of this *small percentage* that I introduced the Adulteration Bill.

With regard to medicines being made up of different strengths for the home or foreign trade it was notorious, and I can vouch for it from my own experience; and although, since the Pharmacy Act, great improvements have taken place, I have reason to believe that for export the practice still continues, but I was not aware that any chemist or druggist had been prosecuted under the Act of 1872.

If incompetent analysts have made mistakes it is not the fault of the Act, which is admitted on all sides to have done much good, and to have prevented much evil.

I am, sir, your obedient servant,

House of Commons,

P. H. MUNTZ.

June 17, 1874.

#### LEAD IN AERATED WATERS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—We have read with interest Professor Brownen's reply to our communication embodying Professor Atfield's analysis of aerated waters contained in our syphon bottles.

As regards the abstract question whether aerated waters can, under any circumstances, take lead into solution, we must leave these learned professors to decide and inform the world one way or the other, but we think that the case is pretty clear as concerns the practical view of the matter, which is of most importance to the aerated water trade and the public generally, namely, that in using syphon bottles made of proper materials no shadow of danger exists from this cause.

Without entering upon the question whether some syphon bottles may not be so made as to contaminate the water which they hold, there is one question which we do not see quite clearly settled by Professor Brownen, viz., whether the water which he analysed had not become already tainted with lead from leaden pipes or cisterns before it was bottled or even aerated.

This is a practical question of considerable importance, which we think should also be cleared up, if the object in view is to secure for the public perfect purity in aerated waters.

Yours faithfully,

HAYWARD TYLER & Co.

#### CIVIL SERVICE CO-OPERATIVE TRADING.

TO THE EDITOR OF THE "CHEMIST AND DRUGGIST."

The following correspondence has passed between Lord Geo. Hamilton, M.P. for Middlesex, and Mr. Johnson, Chemist, Brondesbury Terrace, Kilburn, in the interests of those who are opposed to Civil Service Co-operative Trading:—

8 Brondesbury Terrace, Kilburn, N.W.,

June 12, 1874.

MY LORD,—We, your Lordship's supporters and others, remembering that when your Lordship sought re-election for the County of Middlesex your Lordship emphatically disapproved of Civil Service Trading, beg to draw your Lordships' attention to Sir Thos. Chambers' notice of motion, "that on the 16th of June he should call the attention of the House to the extensive system of trading carried on by the Civil Servants of the Crown, under the guise of Co-operative Stores, and move a resolution thereon," and humbly ask that your Lordship will warmly support Sir Thomas Chambers, with a view to bring the subject under the consideration of Parliament, for the purpose of removing what has long been a national disgrace, and which, if not checked, must ultimately prove a national calamity.

We are, my Lord,

Your Lordship's obedient servants,

(Signed), J. JOHNSON, Chemist,

AND MANY OTHERS.

House of Commons, June 17, 1874.

DEAR SIR,—I have to acknowledge your letter of the 12th inst., asking me to support Sir Thomas Chambers' motion on Civil Service Trading. I can only repeat what I said at the General Election, viz., that I was a member of no Co-operative Society, and that I thought shop-keeping had better be confined to shopkeepers; but when you go outside this expression of dis-



approval and ask me to support a motion prohibiting Civil Servants from co-operating you are asking me to support a personal restriction upon their action to which I cannot assent. I admit that Co-operative Stores press hardly upon small shopkeepers, but trading is no monopoly, and so long as Civil Servants perform their duty to their employer you cannot prevent them from employing their leisure time in the manner most pleasant and convenient to themselves.

I remain, yours faithfully,

J. Johnson, Esq.

GEORGE HAMILTON.

8 Brondesbury Terrace, Kilburn, N.W.,  
June 18, 1874.

MY LORD.—Your Lordship will, I feel assured, pardon me when I venture to offer a few remarks, in reply to your Lordship's communication of the 17th, touching the question of Civil Service Trading: not Co-operation so called.

Your Lordship employs the two expressions as if they were synonymous terms, but, upon a moment's reflection, your Lordship will perceive that they have each a separate meaning, not in any way connected with each other. And when we ask your Lordship to support Sir Thomas Chambers' motion, while admitting that it is "going outside the expression of disapproval," yet it is only asking your Lordship to give force and weight to your Lordship's expressed opinion, "that shopkeeping had better be confined to shopkeepers."

It is desirable that your Lordship should clearly understand that we do not object to the Civil Servants co-operating among themselves for their own especial benefit (although we think such combinations have their negative points), but we certainly have just and great cause to complain when we find them not only Co-operating, but carrying on Co-operative Trading, by inviting and receiving the outside public, in numbers which, I believe I am correct in saying exceed themselves as five to one, for the purpose of making a profitable undertaking of what would otherwise prove to be a gigantic failure; and upon terms with which no honest tradesman could pretend to compete. Besides which, your Lordship cannot fail to perceive that such an effort made by the Civil Servants of the Crown to get rid of one of the established institutions of the country, in which is involved the welfare of the whole of the middle classes, savours strongly of the destructive policy adopted by Mr. Gladstone's Administration, and which this country has been so anxious to check by placing in power the Conservative Government, of which your Lordship forms one of its honourable Cabinet.

I will not occupy your Lordship's time by any further arguments upon this subject, believing that it will be ably discussed by the assembly of which your Lordship is an honourable member. It is a matter which your Lordship must be aware we cannot allow to slumber; the interests involved are of too great a magnitude to be lightly passed over.

It may be "pleasant and convenient" for the Civil Servants to accumulate, by Trading, 80,000*l.*, which they divide in a manner best known to themselves, but I fear that "pleasure and convenience" is not very highly appreciated by those whose interests are so deeply sacrificed.

I am, my Lord,

Your Lordship's obedient servant,

Lord Geo. Hamilton.

J. JOHNSON.

House of Commons, June 19, 1874.

DEAR SIR,—I have to acknowledge your letter of the 18th, stating very clearly and ably your opinions upon the question of Civil Service Trading. I want to point out to you how it is that although we agree in the main, yet we do not arrive at the same conclusion. There may be many things of which we disapprove, and many social movements from which we hold aloof, but it is only in certain instances where it can be proved clearly that legislative interference is absolutely necessary for the good of the whole community that it is justifiable for Parliament to pass fresh laws with a view to restricting the personal liberty and action of individuals. Can the traders who object to Co-operative Trading make out such a case?

Believe me, yours faithfully,

J. Johnson, Esq.

GEORGE HAMILTON.

In a long letter, dated June 22, Mr. Johnson urges the special points of argument against Civil Service Trading. First, that Parliament has a right to control the action of its employes in a somewhat different sense to what it may interfere with indi-

viduals generally. The particular case under consideration, Mr. Johnson considers to be worthy of Parliamentary interference, inasmuch as the Civil Servants make use of their Civil appointments to under-bid, or compete unfairly with, those who are entirely dependent upon their business or calling for a daily existence, thus committing a great moral and social wrong. Incidentally the writer shows that Civil Service Co-operative Stores represent an amount of trade equal to something like 800 well established businesses, each of which would supply its quota to the Exchequer for Wine Licenses, P.M. Licenses, &c., and also rates and taxes to a very considerable amount, thus proving that the National Exchequer suffers, as well as trading interests. But on broader grounds, Mr. Johnson argues that the tendency of these stores is to crush that spirit of individual enterprise which has made England what it is.

No reply being received to this letter, Mr. Johnson wrote again on June 29, informing Lord George Hamilton that he contemplated the publication of the correspondence. To this the following reply was received:—

17 Montague Street, Portman Square,  
June 30, 1874.

DEAR SIR,—I did not answer your last letter because you seemed to me to have failed to prove the one point to which I directed your attention, viz.:—Is it for the welfare of the whole community that Parliament should by law put down Co-operative Trading. The Civil Service Co-operative Stores are the largest and the best managed of numerous stores that have recently sprung up; and the attack, though nominally directed against the Civil Service, is in reality against all Co-operative trading. If men by co-operation can obtain things cheaper than by dealing with shopkeepers it is manifestly unjust to compel them by law to buy the dearer articles, in other words, it is taxing the consumer for the benefit, not of the nation, but of traders. It is making the right to trade a monopoly, and the days of monopolies are past.

It is for these reasons that I decline to support any attempt to put down by Parliamentary action Co-operative Trading. I do not belong to any Co-operative Society, neither do I deal with any, for I am ready to pay for the civility and attention with which all the tradesmen I deal with treat my wants.

I have no objection to your publishing our correspondence, provided this letter and your letter of the 29th inst. form part of the correspondence.

I remain, yours faithfully,

GEORGE HAMILTON.

Mr. Johnson adds to this discussion:—

"His Lordship appears to have gone outside the discussion, and raised a point not embraced in our correspondence. It has never been suggested 'that Parliament should by law put down Co-operative Trading,' but the grievance which I have endeavoured to explain very clearly is, that the *Civil Servants of the Crown*, while in the pay of the State and receiving pensions, should be permitted to enter into trade, be exempt from all taxes and imposts which are levied upon traders, and carry on trade upon such principles that it is impossible for traders to compete honourably with them, thus virtually excluding all except themselves from entering trade, and by this means creating a monopoly which his Lordship appears to regard as a state of things peculiar to "past days." Is it an attribute of wisdom to condemn anything as wrong, and at the same moment to advocate a course of action the effect of which is to create the very wrong we condemn?"

"There are other points omitted in his Lordship's letter which I doubt not will be fully discussed elsewhere."

## THE ASSISTANT FAMINE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—As your correspondent last month very justly observes, it is quite unnecessary to recall to memory the four or five years purgatory (during which you are treated as one of the family) termed apprenticeship in order to find a reason for the present great scarcity of assistants. It will suffice for most reasonable men to read over the columns of "Assistants Wanted," and there discover the solution of the problem. Advertisements are printed from time to time requiring "an assistant with good testimonials, gentlemanly appearance and address, to make him-



self generally useful," it may be amidst Gilbey's wines and bottled ales, for the munificent sum of 35*l.*, or at most 40*l.*, per annum. The gentleman required (who must possess a good stock of *carto do visitas*) has in all probability paid a large premium, worked hard (as one of the family) for four or five years, and it may be, spent his spare money and leisure time in preparing himself for the major and minor examinations. Examples of this kind might be multiplied indefinitely. An assistant dispenser is wanted for the Coventry Provident Dispensary: he is to receive 60*l.* per annum, "out-door." Can he exist for much less than 40*l.* a-year? No! This leaves him 20*l.* for clothing and pocket-money—if he can save much out of that he deserves great credit; yet, as dispenser to a public institution, he must be educated and trained to his work, and hold himself responsible for the lives of hundreds of people which pass through his hands yearly. I am expecting an advertisement before long for a qualified assistant who will be required to "wait at table" when required: such an one would, I fear, be too soon filled up for me to be able to obtain it.

To conclude: Is not all this more than sufficient, without entering into the question of "hours of labour," to account for the famine? Is this what we are all to become educated gentlemen and scientific men for? When employers can open their hearts and give their assistants the position of a gentleman with gentlemen, then, and then only, will the scarcity be at an end, and both employers and employés will reap the benefit of a mutual, kindly understanding, instead of suffering, as both now do, from a feeling of mutual jealousy and dissatisfaction.

B. P. W.

Nottingham.

## "THE CORNER FOR STUDENTS."—A WORD FOR THE JUNIORS.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—Allow me to ask if it is fair to the students who compete for the prizes you are so kind as to offer that duly qualified pharmaceutical chemists should be allowed to compete?

I am afraid the small number of competitors will become still smaller if such is the case, since you cannot expect country assistants and apprentices to become interested in the matter, as they have very little chance against such odds.

I am able to bear testimony to the good which has been done by your "Corner for Students," as, until I passed the "Major," I was a constant competitor, but now I should consider it derogatory to myself and unfair to aspiring students, to take any part in the race. I would respectfully suggest that in future only students preparing for the examinations should have the privilege of competing.

A growing interest in the subject of provincial education prompts me to ask you to insert this short note in the ensuing number.

Yours faithfully,

"ENGLAND."

## TRICKS OF TRADE.

TO THE EDITOR OF "THE CHEMIST AND DRUGGIST."

SIR,—The enclosed label, taken from the back of a drawer containing light carbonate of magnesia, is a curious compound of pharmaceutical ethics and pharmaceutical Latin:—

*Si vocas Magnes. Calc. opt. tum. 6*d.* oz.*

*Sed si Magnes. Carb., 3*d.*, vel., 4*d.* oz.*

*3*j.* into 7.*

Another drawer in the same nest is labelled (on gold) "Agnus Nig." intended, I suppose, as the Latin equivalent for Lamb's Black, the name by which lamp black is generally known and asked for in this locality. In close proximity to the latter is another, capable of holding 6*lbs.* or 7*lbs.*, labelled "Moseh. Gran." Unfortunately there is no label at the back of this drawer, disclosing the secret, so I am unable to do as my predecessor did, and supply "pennorths of musk."

Yours, &c.,

A POTTERY CHAP.



THE AIR-GAS COMPANY.

THE Air-Gas Light Company, which a year or two ago seemed to threaten an eclipse of our present system of illumination, by a more simple and economical method of production, has lately appeared in the Vice-Chancellor's Court. Two petitions from shareholders were presented, praying for a winding-up. They asserted that of 100,000*l.* subscribed, some two-thirds of that sum had already been spent with the result of proving the impracticability of the patent. Other members of the company, however, including Mr. Harrison, the patentee and largest shareholder, were still hopeful, and opposed the petitions. Vice-Chancellor Sir C. Hall judged that the court could not take upon itself to say that the patent was an impossible success, therefore he must dismiss the petition with costs; but he expressly exculpated those who had presented the petitions from any imputation of bad faith.

## RESISTING A SANITARY REFORMER.

A SEVERE lesson has been taught to a gentleman at Folkestone for publicly despising medical and chemical testimony. An action for libel was brought in the Court of Exchequer, before the Lord Chief Baron and a special jury, by Dr. Leeman Bowles, of Folkestone, against Mr. Richard Hart, secretary to the Waterworks Company of that town. The plaintiff, it seems, had been energetic in attacking the water supplied to the borough; he had had samples analysed by Dr. Bence Jones, and on this analysis he had based his opinion, urging some alterations in the reservoir. The defendant, by letters in the *Folkestone Chronicle*, had questioned Dr. Bowles' qualifications, had denied his allegations, and had made personal attacks on him. The Lord Chief Baron summed up favourably to the plaintiff, and the jury returned a verdict awarding 1,000*l.* damages.

## THE ADULTERATION OF CLARET.

At the Staffordshire summer assizes an appeal case in regard to the adulteration of claret was investigated. The appellant was Joshua Pendleton, a wine merchant of Tunstall, who had been fined on the evidence of Dr. Wentworth L. Scott, of Wolverhampton, and Dr. Thudichum, of London. The question submitted was whether the claret was really adulterated, or was only of poor quality. The scientific evidence was of especial interest.

Mr. Wentworth Scott, analytical chemist, of Wolverhampton, and analyst for North Staffordshire, had had considerable experience in the analysis of wine. He had made many experiments in detecting logwood, and had never found any difficulty in detecting it when present in any quantity. Minute quantities might be difficult to discover, but in this there were very distinct traces. He also found traces of sulphuric acid foreign to the wine, the quantity being, comparatively speaking, large, being five or six times more than could have been found in the juice of the grape. In his opinion the adulteration was distinctly injurious to health. No one could drink oil of vitriol with impunity.

In cross-examination by Mr. Motteram, witness said the claret would have poisoned even a county analyst if he drank enough of it, unless he took an antidote. The claret would be injurious to health on account of the sulphuric acid and impure spirit containing fusel oil, and even the extract of logwood was not one of the most wholesome things a person could take. By impure spirit he meant one derived from the distillation of wine which contained an abnormal or inordinate amount of the higher alcohols, such as fusel oil. The amount of spirit which he said was impure was about 15 per cent., and he repeated that it was rendered impure by the presence of fusel oil, which he detected chiefly by the odour. Asked what was the smell of fusel oil, witness said it was difficult to describe an odour, but



he could show the learned counsel the article itself, and handed him a small bottle. The quantity of wine was too small for him to ascertain the quantity of fusel oil in the spirit. All claret did not contain fusel oil, except in quantities so minute as to be undiscoverable by the smell. He did not know of any wine that did not contain traces of the oil. If all wines, as far as you know, contain fusel oil, what, asked Mr. Motteram, is your justification for calling the 15 per cent. which you say is in the wine impure spirit? to which the witness replied that the spirit distilled from the wine, instead of having the usual pleasant vinous odour natural to what is known as spirits of wine, had a rank, unpleasant odour well known as fusel oil. To his mind the distillates of all wines did not smell unpleasantly. They smelt pleasantly when the wine was pure. In the years 1865 and 1866 he had analysed 84 samples of claret. In this sample there was too much impure spirit for it to be genuine. In reply to further questions by Mr. Motteram, he said that the sulphuric acid had probably been added to make the wine more acid. He was not acquainted with the special *desiderata* of adulterators, but claret, if made less acid by water and impure spirit, would require to be made more acid by something not natural to the juice of the grape. Claret was an acid wine, and if it were first of all made less acid by water and impure spirit its acidity must be restored. Moreover, the sulphuric acid might be added to make it keep. As to the colour of the claret, it did not please him. It seemed to have something of the wrong tint. In fact, his suspicions were excited. Then, again, the odour was not particularly good. It smelt a little rank. As to the flavour, it was too astringent and rather too acid for good wine. He believed that the husks of the grape gave the colour to wine, but he had never known them give just that colour which this wine had. It had rather a bluish tint. He dialyzed a small portion of the wine, by which he was enabled to get a portion of the colouring matter in rather a purer condition, and by microscopic, spectroscopical, and chemical tests he satisfied himself that a large proportion of logwood was present.

Re-examined: With the spectroscope an analyst could ascertain with certainty the presence of logwood or hæmatoxyline if there were a sufficient quantity. From this test he could speak with certainty as to hæmatoxyline being in the claret. With regard to sulphuric acid, there was some in the grape and in all vegetable substances, but the quantity contained in this claret was largely in excess of the highest natural proportion. He could not speak as to the order in which the various adulterants were put in the claret, but that they were put in he was absolutely convinced.

Dr. J. L. W. Thudichum said he had been employed by the Medical Department of the Privy Council for many years in inquiries relating to the public health, and had had very great experience in analyzing wines. In April he received a reputed pint bottle about one-third full of liquid from the last witness. It contained several ingredients foreign to claret. In the first instance, it contained an abnormal amount of sulphuric acid, which he should presume in quantity to be from eight to ten times as much as was contained in natural and pure claret. By claret he meant wine from Bordeaux and the Medoc district. There were colouring matters which did not belong to the wine, one being derived from logwood, and the other one as to the precise nature of which he gave no particular evidence. There was a large quantity of phosphate of lime, very much larger than ever was met with in any wine, even if any was met with. Containing such ingredients as he had found, the wine was undoubtedly unfit for human consumption, and injurious to health.

In cross-examination, Dr. Thudichum said the sample he received was not sufficient for a complete analysis, which would require two quart bottles. He endeavoured to take a quantitative analysis of the solid ingredients—the ash and alcohol—but that miscarried on account of the wine being adulterated. The method he used was Tabarie's, and it would not have failed had the wine been normal.

Re-examined: He never knew Tabarie's method fail with pure wine. From the analyses he made he could speak with certainty as to the presence of adulteration.

Dr. Alfred Hill, of Birmingham, gave directly contrary evidence, he regarding the wine as genuine in every respect. He had found no logwood, and only 0.16 per cent. of sulphuric acid. The bench concluded that the wine sent to Dr. Hill could not have been the same as that which had been analysed by Dr. Scott and Dr. Thudichum, and consequently the judgment was confirmed.

#### ALLEGED ADULTERATION OF QUININE.

Mr. W. S. Pearson, Chemist and Druggist, Kildsgrove, was summoned at the Tunstall Police Court, on the 2nd inst., charged with having sold adulterated quinine.

Mr. Fulford, barrister, instructed by the Clerk of the Peace for the county, supported the charge; and Mr. F. W. Tomkinson appeared for the defence.

William Giffard, assistant to Mr. J. E. Knight, inspector under the Adulteration of Food Act, stated that on April 18 he purchased at Mr. Pearson's shop a shilling's worth of quinine. He told Mr. Pearson he required it for the purpose of having it analysed by Mr. Scott, the county analyst, and that it would be delivered to Mr. Scott at his residence at Wolverhampton on April 20. The parcel was sealed up before it was taken from Mr. Pearson's, and witness delivered it to Mr. Knight.

Cross-examined: Mr. Pearson told witness it was Howard's best quinine, and he believed it was pure. Mr. Pearson showed him the bottle and the label on it. It was like the one produced.

Mr. Knight, inspector, said he delivered the parcel to Mr. Scott, who took a portion of the quinine, and witness had retained a portion, which was sealed up with Mr. Scott's seal.

Mr. Scott's certificate was in the following terms:—"Quinine, with sulphate of cinchonine, an alkaloid comparatively valueless for those or most of those purposes for which quinine is specially employed. In my opinion the said sample (being largely adulterated) is a drug coming within the meaning of the 24th sect. of the Pharmacy Act, 1868, which requires all such admixtures to be deemed injurious to health."

Mr. Tomkinson said he did not see why Mr. Scott should undertake to decide in his certificate what came within the meaning of the Act.

Mr. Fulford said any adulteration of an article used as a medicine was held to be injurious. It was not necessary to prove that the article used for adulteration was of itself injurious.

Mr. Tomkinson said Mr. Pearson purchased the quinine from a wholesale dealer, and he believed it to be pure. That portion which remained in the bottle after Giffard made the purchase was sent by Mr. Pearson to Dr. Attfield, Fellow of the Chemical Society, and professor of practical chemistry to the Pharmaceutical Society of Great Britain, who would swear that it was pure commercial quinine, and evidence would also be given to show that Mr. Pearson never had, to his knowledge, any cinchonine in his shop. The quinine was extracted from Peruvian bark, which varied in quality, the finest quality yielding the greatest proportion of quinine. Besides quinine, the bark yielded quinidine, cinchonine, and cinchonidine. It was impossible to make one of these without having a trace of one of the others in it. He contended, therefore, that even supposing there to be cinchonine in the quinine, it would not be an adulteration within the meaning of the Act, the definition of adulteration being something added either for the purpose of increasing the bulk or cheapening the price of the article to be sold, whereas both the articles in question were made from the same materials.

Miss Louisa Pearson, daughter of the defendant, was examined to show that she, as an assistant in her father's shop, had never seen any bottles of the description of those in which Messrs. Howard sold cinchonine. The quinine was a different kind of bottle.

Mr. J. Parker, draper, Kildsgrove, proved making up a parcel of quinine from the bottle produced (the same bottle as that from which William Giffard had been supplied). It was sealed up and sent in a registered letter to Dr. Attfield on June 20.

Dr. Attfield said he analysed the quinine which he received by post on June 22. He had had great experience with reference to quinine. It was a medicine obtained from Peruvian bark. This bark not only contained quinine, but quinidine, cinchonine, and cinchonidine, all closely allied substances. One portion of bark would yield more quinine, another more cinchonine, and so on. It was impossible to obtain quinine from bark without its containing a small quantity of the other alkaloids: usually not more than one per cent. He gave extracts from a report of commissions appointed by her Majesty's Secretary of State for India in 1866-7-8 for the purpose of showing that the other alkaloids he had named were nearly as efficacious as medicines as quinine. He dissented from the statement that cinchonine was valueless. He was well acquainted with Messrs. Howard's works. They only manipulated one ounce of cincho-



nine to every 125 ounces of quinine, so that if they mixed the whole of the two medicines, less than one per cent. would be cinchonine, but he knew they sold the latter separately. The sample sent to him from Kidsgrove not only did not contain a large quantity of sulphate of cinchonine, but it did not contain altogether one per cent. of the three alkaloids which were not quinine. It was pure sulphate of quinine.

Mr. Fulford said he would not dispute that Howard's quinine was generally very good; but the question was whether that which was sold to Giffard was Howard's. Mr. Pearson did not procure it direct from Howard's.

Mr. Scott, the county analyst, was then examined. He said he had had considerable experience in analysing alkaloids obtained from bark. He gave evidence in support of his certificate. The sample he analysed contained certainly 9 or 10 per cent. of cinchonine. He would not pledge himself to a fraction of a grain, because he should have preferred a larger quantity to work upon.

Mr. Greenwood said the word "largely," as used in the certificate, was very indefinite.

Mr. Scott said he would certify more definitely in future. In further examination the witness said he did not believe the whole of the quinine which he analysed came from Messrs. Howard's. He made more than one experiment, and one portion was more largely mixed with cinchonine than the other, showing that it could not have got mixed by accident in manufacturing.

Mr. Scott was strictly cross-examined as to the experiments which he made with the quinine, and at the close of his evidence, Mr. Greenwood said before deciding he should direct an analysis to be made by an independent man of that portion of the quinine which had been retained by Mr. Knight. The case was consequently adjourned, and it was arranged that the sample to be analysed should be sent to Dr. Paul, of London.

#### ALLEGED ADULTERATION OF SCAMMONY.

On June 17 Mr. Cocks, Chemist and Druggist, of 88 Chancery Lane, London, was summoned before Mr. Vaughan, at Bow Street, for selling scammony powder declared to be adulterated. Mr. Jenkins appeared on behalf of the Strand Board of Works for the prosecution, and Mr. St. John Wontner defended the case.

The first witness was the inspector, Frederick Taylor, who had purchased from Mr. Cocks 2 drachms of scammony powder, for which he had paid 1s. He had handed about half of it to the analyst, Mr. C. H. Fiesse, whose certificate was to the effect that he had found about 8 per cent. of adulteration, consisting of 5 per cent. of flour and 3 per cent. of chalk.

In cross-examination Mr. Wontner tried to make the witness admit that he had purchased the scammony representing that it was for a doctor, but the witness positively swore that he made no such representation.

Mr. C. H. Fiesse, the analyst to the Strand Board of Works, was next examined, and swore to his certificate. He said that the flour and chalk must have been added to the scammony, and were not inherent. Mr. Wontner then commenced his cross-examination. He commenced in respect to the method of collection of scammony. Mr. Jenkins interposed the remark that they had not sent to Asia before commencing the prosecution, but Mr. Wontner replied that he presumed their analyst had made himself acquainted with the process generally from books. The cross-examination went to show that scammony was collected by sticking a shell in the root, having first dug a hole around; that the resin exudes into the shell, and that the soil being chalky, the air full of sand, and the natives somewhat careless, certain impurities became incorporated with the scammony. Further, that in handling it it is so sticky that it is customary to use flour to prevent it from adhering to the fingers. After some little discussion the witness admitted that all this was or might be. Mr. Wontner then went on to question the witness respecting the average quality of scammony imported into this country. The specimen in question was stated to have contained about 73 per cent. of resin, and at last Mr. Fiesse admitted that he had told Mr. Francis (Hearon, Squire & Francis) that this was a very good specimen of the scammony of commerce, but he maintained that he did not care for the quantity of resin so long as he found adulterants present.

After a few questions by the magistrate, which again elicited that the present specimen was a very good one, Mr. Wontner made his address for the defence. He explained that he appeared

partly for Mr. Cocks and partly for the wholesale firm which had supplied the scammony, Messrs. Hearon, Squire & Francis. He stated that the scammony now under consideration had been bought by Mr. Squire as the very best in the market; that it contained 80 per cent. of resin, and that the only possible deterioration might have been the attraction of a certain amount of moisture to which all powders were liable. He said that Mr. Squire had had 40 years' experience in the trade, and had had this particular article under his notice during the whole of that period. Dr. Attfield would also be called, and he would prove that the scammony contained 75 per cent. of resin. He was also prepared with a return which would prove how small a proportion of really well-gathered scammony was collected.

Mr. William Squire was called, and proved having supplied some scammony to Mr. Cocks. In reply to questions from Mr. Wontner, the witness then proceeded to describe the method of collection.

Mr. Jenkins objected that this was simply to the effect that Mr. Squire agreed with Mr. Fiesse's evidence. Mr. Wontner said his object was to show how the flour got in. The magistrate considered it an important point, as he remarked, "People are not to be made responsible for substances which get in in the preparation or the collection of the gum in Asia Minor." Mr. Jenkins thought the Queen's Bench decision in regard to tea led to the inference that they were; but the magistrate objected to this view. Mr. Wontner said that if the decision should be against the defendant it would entirely stop the sale of scammony in this country. The witness then went on to say that the scammony now referred to had been bought in the market in the usual way; that it was the best which could be obtained; he had tested it before buying (not very minutely), and had found it to contain about 80 per cent. of resin. He had given 30s. a pound for it, which was the highest price of the day. This scammony was now worth 34s. Some scammony was sold that same day to some German buyers for 1s. 7d. per pound. The witness further explained that it was also a custom in the trade to import the root itself, and extract the resin in a perfectly pure state; that by that means it could be sold at one-third the price of this virgin scammony, but that it was not believed to possess the medicinal virtues of the latter. Mr. Squire considered that an adverse decision would entirely stop the trade in scammony.

In cross-examination, Mr. Jenkins elicited that scammony of various qualities was sold. Mr. Squire said that on the same day this sample was ground he had powdered some of 70 per cent. and some of 50 per cent. They sold what was required by the trade; but as Mr. Cocks was a customer who bought none but the best, they had come to the court to protect him and themselves.

Professor Attfield next gave evidence of his analysis of this scammony, which he affirmed to be a genuine, unadulterated scammony. It contained 76 per cent. of resin, which was up to the standard given by most authorities. He explained how the impurities got in the scammony, and on this evidence Mr. Vaughan (after Mr. Jenkins had said he did not dispute that the same scammony had been supplied to Dr. Attfield as to Mr. Fiesse) decided to dismiss the summons. Mr. Wontner asked for costs, on the ground that the Board had taken action without making sufficient inquiry, but after some discussion between the two counsel, the magistrate declined to impose costs. He however thought that the analyst should inform the Board when he met with a sample which was satisfactory, and not leave them with his bare certificate.

#### UNFOUNDED CHARGE AGAINST A CHEMIST.

At the Birmingham Police Court, on the 1st inst., John Joseph Horton, a chemist, of Stratford Road, Birmingham, was charged with committing a rape on Helen Heath on the 23rd ult. The plaintiff's evidence was very extraordinary. She said she went to defendant's shop about twenty minutes past nine in the evening and asked for a half ounce of citrate of magnesia. Mr. Horton said he could give her something better, and accordingly mixed for her a draught, telling her it was sal volatile. She said it was colourless, and hot to the taste, like ginger. The effect of the mixture was to stupefy her, and, whilst she was conscious of what was going on, she was physically unable to resist the prisoner, who took her through the door which opened into a partition, and behaved in an indecent manner.

The corroborative evidence was especially weak, the surgeon



produced by the complainant remarking that there were no marks of violence. He was quite unable to account for the peculiar effects alleged to have been produced by the draught. For the defence the prisoner's brother swore that he was in the shop with the prisoner from 8 o'clock until 25 minutes past 9, when the shop was closed, and they both went to the Midland Hotel to supper, where they were seen about 10. A surgeon had examined complainant, and found no marks of violence on her, nor anything incompatible with perfect chastity. The counsel for the prosecution (Mr. Fallows), after this evidence, declined to proceed farther with the case, and declared his opinion that it had been trumped up. The Bench discharged Mr. Horton, remarking that he left the court without a stain on his character.

#### COAGULINE.

On July 9, at the Manchester Police Court, a Mr. Van Stan, described as a chemist, of Bridport Street, Dorset Square, London, was charged with having sold a cement, which he unlawfully called Coaguline, at the Botanical Gardens, Manchester, on May 25 and 26 last. Mr. Thomas Kay, of Stockport, one of the proprietors of Coaguline, had observed this infringement of his rights, and had bought a 6d. bottle. Evidence was given in support of Mr. Kay's claim to the title, and the bench fined defendant 5*l.* for each of the two days during which the article had been sold, and 6*d.* for the bottle which had been sold to complainant.

#### DUNN v. LONDON AND NORTH WESTERN RAILWAY COMPANY.

At the Sheriff's Court, on May 11, a heavy compensation case was tried between Mr. Spencer Dunn, manufacturing chemist, Prince's Square, Finsbury, and the London and North Western Railway Company. The latter required the premises for the enlargement of their goods station. The claim was 15,000*l.* Mr. Hawkins, Q.C., and Mr. Holl were for the claimant; Mr. Lloyd and Mr. J. Edwards for the company.

The special jury went to take a personal view of the premises required by the company, which are used as stores for goods manufactured at Mr. Dunn's works at Stratford. On their return the parties conferred together for an hour and a half, when Mr. Hawkins announced that the matter had been settled. The jury would find a verdict for 12,500*l.*

#### COPPER IN GREEN PEAS.

At the Kensington Petty Sessions, on the 7th inst., Mr. Alfred B. Voysey, grocer, of Turnham Green, was summoned for selling an adulterated article of food, to wit, preserved green peas. Mr. J. Greig, the local inspector, proved the purchase of a hermetically sealed tin of preserved French peas at the defendant's shop, and their being duly submitted to the analyst. Professor Redwood presented his certificate of analysis, showing that the peas in question had been coated with copper in the process of preservation, and that they owed their apparently natural colour to its presence. This was highly injurious to health. He had ascertained that the proportion of copper was equal to one grain of sulphate of copper in a canister of peas. Green peas had been largely imported from France to the English market. The sale was prohibited in France by the authorities, and they were manufactured expressly for English consumption. He had examined other samples of preserved peas prepared by Crosse & Blackwell, and found them devoid of the green colour, and also of any compound of copper. It was impossible to keep them green without the introduction of copper, which played the part of a mordant in fixing the green colour of the peas. The defendant said he bought a quantity of peas from a firm who imported them from France, and they had assured him that the colouring matter was only the essence of spinach. He was fined 2*l.* and costs.

#### WARBURG'S TINCTURE AGAIN.

An action was brought in the Court of Queen's Bench on June 20, by Dr. Carl Warburg, against the Messrs. Nowbory, for selling another preparation than his under the same name. Dr. Warburg is this time himself the defendant, Messrs. Savory & Moore being plaintiffs. The case is one of libel.

Mr. Powell, Q.C., and Mr. Mirchouse were for the plaintiffs; Mr. Digby Seymour, Q.C., and Mr. J. A. McLeod were for the defendant.

An order had been given by the Government to the plaintiffs,

who are the Government medical contractors, for a supply of the tincture to the troops in Africa. This came to the defendant's ears, and he, believing that the order would be for a large quantity, and knowing that there was only a very small quantity in the market, wrote to the Government official on the subject, and received a reply that a sufficient quantity of the tincture had already been supplied. He wrote again, saying that if that were the case the tincture was not his, but a spurious imitation, and asking who was the author of this scandalous fraud. This was the libel complained of. The tincture was supplied by the plaintiffs, the quantity being 50 bottles only, and it was all of the defendant's own make. There was a good deal of correspondence, and concessions on both sides were asked for. No apology was made, as, under the circumstances, the defendant said he did not feel justified in making one.

After the plaintiffs' case had been opened by Mr. Powell a discussion occurred as to the circumstances which had led to the defendant's mistake. Eventually it was agreed that the Lord Chief Justice should say what should be done between the parties, and a verdict of 40*s.* was taken, the costs to be paid by the defendant, and all imputations on both sides were withdrawn.

#### NOT GUILTY, BUT PAY COSTS.

On December 16, 1873, the inspector appointed under the Adulteration Act for the northern division of the county of Stafford purchased, from Messrs. Johnson & Woolrich, chemists, Uttoxeter, 2 ozs. arrowroot, which on delivery to him he stated would be sent to the appointed analyst for the division, Mr. W. L. Scott, of Wolverhampton, for analysis. On April 29, 1874, the above firm received a summons to answer to the charge therein made, that they "did unlawfully sell to one Maurice Richards two ounces of arrowroot as unadulterated which was adulterated." In compliance therewith, on May 6, the day appointed, Messrs. J. & W., armed with certificates of the genuineness of the arrowroot from Professor Redwood, Southall, Sou & Dymond, and W. W. Stoddart (they having examined samples from the same case), appeared before the bench of magistrates, when, through illness, the inspector not being able to attend, the case was adjourned for five weeks. On June 10 they again appeared in court to endeavour to justify their character, but were doomed to disappointment, as the magistrates would not receive as evidence nor hear read the certificates they produced. The only alternative given by the bench was therefore resorted to, viz., to send the remaining half of the arrowroot for other independent analysis, Dr. Voelcker being assented to for the purpose. At the expiration of one month's further adjournment, viz., on July 8, the certificate of Dr. Voelcker was opened and read before the magistrates. The following is an extract from it:—

"It is pure arrowroot, and, like all arrowroot, consists of starch with scarcely a trace of gluten and mineral matter."

So far the character of the firm is upheld, but legal and other expenses necessarily incurred in proving their innocence the bench declined to allow.

#### NON-SUITED.

A decision of some importance to proprietors of journals was given by Mr. Commissioner Kerr at the City of London Court on June 19. The manager of THE CHEMIST AND DRUGGIST summoned Mr. Sidney Brown, wholesale perfumer, of 8 Blackfriars Road, for 9*s.* 4*d.*, amount of subscription to that journal from October 1872 to December 1873. The plaintiff swore that he had met Mr. Brown in the street, and that after some conversation the latter remarked that he had not seen THE CHEMIST AND DRUGGIST for some time, to which it was replied that that was because he had not subscribed for it. Defendant said that he should like to have it sent him, and plaintiff promised that this should be done. As Mr. Brown had been an occasional advertiser, an account stood in his name in the books, and this item was duly entered. Plaintiff said he had with him a witness who could prove having received instructions to enter Mr. Brown as a subscriber and send him the journals, and that this had been done. The defendant swore that he had never given any order, whereupon Mr. Commissioner Kerr at once ordered a non-suit. The plaintiff asked His Honour to hear his witness, and also added that when Mr. Brown first refused to pay he simply said he did not remember the occurrence, and that now he swore he had never given the order. The judge said that amounted to nothing; there must be a written order.



## Trade Memoranda.

MESSRS. GLAISYER & KEMP, of Brighton, have dissolved partnership.

MR. DAWE, formerly of Freemantle, and late of Portsmouth, has opened business in Southampton.

MR. HICKS, formerly with Johns & Co., Southampton, has opened business in the city of Winchester.

MR. MARTIN has disposed of his business to Mr. Barker, late assistant to Messrs. Cooper & Waruer, of Clifton.

MR. DAYMOND has succeeded to the business of the late Mr. Wey, of Union Street, Stonehouse.

MR. MILTON, chemist, of Exeter, has purchased the business formerly carried on by Mr. Walton, of Exeter.

THE BUSINESS of the late Mr. Allen, of Union Street, Torquay, has been purchased by Mr. Ness, formerly assistant to Messrs. Savage & Sons, Brighton.

MR. SOMERTON, chemist, of Torquay, has retired from business; he is succeeded by Mr. Martin, of White Ladies Road, Bristol.

MESSRS. WALTON & BRIDGES, chemists and druggists, of Richmond, Yorkshire, have dissolved partnership by mutual consent, Mr. Walton continuing the business.

THE LONDON DEPÔT for Seymour's Patent Magnetic Appliances has been removed from 224 Kentish Town Road to Queen's Buildings, Queen Victoria Street, City.

MR. BINGLEY (late Greville & Taylor), of Northampton, has retired from the trade to cultivate the mineral water business. He is succeeded by Mr. Griffin.

THE business of the late Mr. Baigent, of Winchester, has been purchased by Mr. Allen, chemist, of Basingstoke and Aldershot.

MR. EBENEZER SCOTT, of Gainsborough, brother of Samuel S. Scott and Thomas Scott, chemists, of Sheffield, has purchased the business of Mr. Solomon G. Maw, of Broad Lane, Sheffield, who has retired.

MR. FOX, pharmaceutical chemist, of the Bethnal Green Road, has sent us some samples of a cooked food for infants and invalids, supplied in cheap and saleable packages. It is sold in wooden canisters from 2d. upwards.

THE NORTHAMPTONSHIRE PETTY SESSIONS has appointed Mr. Young, pharmaceutical chemist, of Leicester, as analyst for the county. Mr. Young is also public analyst for the borough of Leicester and counties of Leicester and Rutland.

MR. T. M. DEIGHTON, of Bridgnorth, pharmaceutical chemist and local secretary to the Pharmaceutical Society, has been appointed by the Lord Chancellor to be one of the magistrates of the borough of Bridgnorth.

THE LAST surviving member of the once important firm of Sharp, Higgins & Cattle, of Seil Street, Liverpool, Mr. Charles Higgins, committed suicide recently by hanging himself with a roller towel. He had lately lost his wife and was left with a large family, and his mind seems to have given way.

THE CROYDON MICROSCOPICAL CLUB has presented Mr. Henry Long, pharmaceutical chemist, with a handsome binocular microscope, in recognition of the active part he took in the formation of the club, and of his services as Honorary Secretary.

WE NOTE with pleasure the removal of the Messrs. Sanger's wholesale patent medicine business to large and commodious premises at 252 Oxford Street, a little farther westward than their old establishment. The new building has been fitted up expressly with regard to the conduct of the particular business carried on by Messrs. Sanger, and affords abundant facility for the perfect execution of their extensive transactions.

A CHANGE has occurred in the old firm of Messrs. Langton, Scott & Edden. The senior partners, Messrs. Langton and Scott, have retired, and henceforth the business will be carried on by Mr. Wm. Langton, Mr. Edwin Edden, and Mr. Frank Hicks, under the style of "Langton, Edden & Hicks."

MESSRS. SOUTHALL, SON & DYMOND, of Birmingham, have recently issued an announcement to the effect, that from July 1, in consequence of the death of their late esteemed partner, Geo. Dymond, the style of their firm will be "Southall Bros. & Barclay."

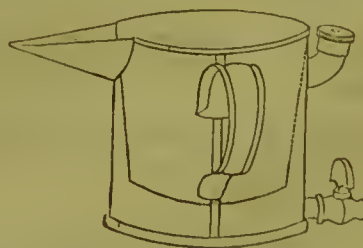
THE PHILADELPHIA COLLEGE OF PHARMACY has gratefully accepted a donation of \$500 from Peter Williamson, Esq., to be held "in trust" for the creation of an endowment fund, the interest to be applied for the benefit of such needy and deserving applicants as the trustees may select, in defraying the requisite expenses attendant on the lectures and other modes of instruction adopted by the College.

MESSRS. BLACKWELL & Co., of Liverpool, are introducing a polishing powder which they call the "Eureka," and which, from our experiments, we find to have excellent properties in the way of polishing all metallic surfaces. It is quite free from grit, as well as from mercury or other deleterious ingredients. We think, however, the proprietors might as well put the powder into a box, and give us a little less of it. At present a 2d. packet contains enough to polish a steam-engine.

MR. ALDERMAN HICK, pharmaceutical chemist, of Bradford, who has also served as churchwarden of the parish church of that town for the past nineteen years, was presented on July 2 by a number of his fellow townsmen with a very handsome testimonial in appreciation of his public services on his retirement from the churchwardenship. The gift included a gold watch, with a suitable inscription; a silver centre-piece for flowers; a tea and coffee service, with spoons, &c.; and finally, an illuminated address. The whole was valued at 200 guineas.

LIEBIG'S MALTED FOOD EXTRACT.—The somewhat complicated but very valuable food for infants invented by the late Baron Liebig is now prepared by Messrs. Ansar, Harford & Co., of 77 Strand, London, under the immediate guarantee of the son of the great chemist. No doubt this food has peculiar nourishing properties. The specimen submitted to us is prepared in an excellent manner, as it has no trace of the burnt taste which is so liable to occur in following out the instructions of the inventor. Doubtless it is a food of great value. The same firm also supply biscuits made according to the same method, which are at once pleasant and most nutritious.

LEAROYD'S SUPPOSITORY BATH.—This is a compact little apparatus, in many respects well adapted for the purpose for which it is intended. For the ordinary retailer's use, when required for the purpose of making half-a-dozen or a dozen suppositories, it is somewhat larger than is necessary. If the inner vessel held about one-third of the contents, it would be more generally useful, and in place of being made of tin, a small porcelain dish



would be preferable, as tin will decompose such salts as nitrate of silver, and others that are often prescribed in suppositories. The angle at the pale of the inner vessel is also a disadvantage, as powders insoluble in the ordinary bases for suppositories, such as hydro-chlorate of morphia, opium, &c., especially when in small quantities, will be apt to get aggregated into that corner of the bath, and however well stirred, it will be difficult to keep them suspended whilst pouring out. A small deep, evaporating disk, of less capacity, as before suggested, arranged in a similar way to this, would be a very useful apparatus. The means devised for adding or drawing off either hot or cold water, without the danger of its coming in contact with the contents of the interior, are very perfect for so small a scale.





REVISED TERMS.—Announcements are inserted in this column at the rate of one halfpenny per word, on condition that name and address are added. Name and address to be paid for. Price in figures counts as one word.

If name and address are not included, one penny per word must be paid. A number will then be attached to the advertisement by the Publisher of the CHEMIST AND DRUGGIST, and all correspondence relating to it must be addressed to the "Publisher of the CHEMIST AND DRUGGIST, Colonial Buildings, Cannon Street, London, E.C.," the envelope to be endorsed also with the number. The publisher will transmit the correspondence to the advertiser, and with that his share in the transaction will cease.

#### FOR DISPOSAL.

Offers wanted for about six gross empty 4-oz. Eau de Cologne bottles. Address, Alpha, 13 Whitefriargate, Hull.

Sonthall's "Materia Medica Cabinet," cost 30s., in good condition: take 18s. or offers. Hardwick, Tything, Worcester.

Fly Papers of good quality. 12s. 1,000. Fortnne, Austruther.

Three show Carboys. Cut stoppers. Pear-shape. Hold 2½ gallons. 8s. 4/237

Two 12-gallon pear-shape Carboys, cut stoppers. J. S. Laing, Chemist, Burnt Ash Lane, Lee, S.E.

A Sonthall's "Materia Medica Cabinet," in good condition, cost 25s. Offers wanted. Chemicus, 1 Castle Street, Reading.

Bentham's "British Flora," 1,295 original drawings, 2 vols., octavo, cloth, perfectly new, uncut, 31s. 6d. (published, 3l. 10s.), last edition. 12/237.

Southall's "Cabinet," latest edition, unused, 21s., with extra specimens, 25s.; Royle's "Materia Medica," 4s. 6d. Watts, 10 Goulgate, Stafford.

A 25-gallon copper Still, with large brass tap and pewter head, in good condition. No worm. An offer wanted. John Taplia, Bristol.

A Soda-Water Machine, with water-pressure gauges, &c., complete. Will make 300 dozen per day. Price 45l. J. Ruston, M.P.S., Maryport.

One hundred gross lemonade Corks at 1s. 9d. 80 gross ditto, stamped with my name, at 1s. 3d. Sample per post. J. Ruston, M.P.S., Chemist, Maryport.

Square mahogany Soda-Water Table. Marble top (a little stained). 24 inches by 20. Cost 4l. 10s. Will take half. Rossiter, Hastings.

Harwich's "Photography;" Braithwaite's "Medical Retrospect," 12 vols., cheap; "Who to Consult;" large Glass Shade, cheap. 28/236.

Fourteen pounds Bicarbonate of Potash, 6d. lb.; six Honeycomb Sponges, medium size, 3s. lb. E. Wildsmith, West Street, Leeds.

"Pharmaceutical Journal," every week. What offers? 25/236

Two and a half dozen of Vichy water, plates, "St. Celestin's," some of labels soiled, 4s. per dozen. Chemist, 7 Aldon Grove, C. on M., Manchester.

Barelay's "Medical Diagnosis," 6s. 6d. (third edition); Bateman's "Magnacopia," 4s. 6d.; Heath's "Minor Surgery," 3s. 6d.; cigar case, Maw's fig. 53, 19s. 6d.; Newfoundland retriever (black), good guard, quiet, to be sold cheap. 13/237.

Cooley's "Encyclopædia Receipts," third edition, excellent condition, published 28s., price 18s.; Southall's "Materia Medica" specimen case, samples in good condition, 15s. George Bright, Horncastle.

Several hundred-weights of Genuine English Beeswax. Offers for whole or any part. Scales on mahogany box, fig. 1 in Maw's catalogue. Price 26s. In good condition. T. B. Percy, Truro.

One Horne's Royal Patent Pneumatic Safety Enema, only once used; also enema apparatus in mahogany box, three pipes, nearly new. Offer wanted. Cart or photographic apparatus taken in exchange. H. Henshall, Lynn, Warrington.

Two handsome specie jars, 32 inches high, gold labelled, and gilt glass covers; one 31 inches and three 22 inches high; ditto with japan covers. Lloyd Rayner, 309 New North Road, Islington, London.

"Pharmaceutical Journal," complete from commencement, first 15 vols. bound in cloth. Price, 4l. cash, or suitable exchange in books, apparatus, &c., to 5l. Walker, chemist, Longton, Staffordshire.

Several gross of odd Bottles (chipped and lettered). Washed. Mostly four, six, and eight oz.; at 5s. a gross. Also a few gross good dispensing three, four, six, and eight oz., flat and oval, at 8s. 6d. 12 oz., 12s.; 16 oz., 15s. Andrews, Chemist, Eastbourne.

Carte Camera and Lens. View Lens, with instantaneous shutter. Handsome studio Pedestal. Several printing frames. Camco die. Tourist tripod stand, &c. Thomas Lee, 15 Cottenham Street, C.-on-M., Manchester.

Two 3-gallon pear-shape Carboys. Seven 1½-gallon pear-shape Carboys. Seven 2½-gallon uprights, all cut stoppers, at half Maw's published price. First ten years "Chemist and Druggist," complete (not bound), for 2s. 6d. per year. 32/236.

A second-hand Halse's 10 guinea Galvanic Apparatus, consisting of 12 porcelain cells, zinc plates for same (half worn), and a regular coil. In a handsome mahogany box, fitted with screw connections. The silver plates are missing, but in all other respects the apparatus is nearly as good as new, having been little used. Leonard Sincock & Co., Nelson Street, Bristol.

Lescher's "Elements of Pharmacy." Cost 8s. 6d. Price 4s. Nearly new. Several hundred valuable questions for the Minor examination. Price 2s. 6d.; also a set of 50 difficult prescriptions as given at the previous Minor examination. Price 1s. Wanted by the advertiser, two Bentley's "Botany" (second-hand), last edition. Apply to G. Wills, 34 Jubilee Place, King's Road, Chelsea.

Smith's (Liverpool) cattle medicines, cordial, cleansing salia drenches, 6s. doz.; black, white, and green oils, 7s. 6d. &c.; 3 gross Atkinson's "Champion" plate polish, 2s. 9d. doz.; Sorel's 6d. and 1s. marking ink, 3s. and 6s. doz.; Calvert's pig powders, &c.; 3 travellers' sample cases, with trays complete. Particulars on application to J. H. W. Jenkinson, petroleum importer, &c., Sheffield.



Pharmaceutical Journal," volumes 1 to 13 first series, volumes 6 to 11 second series, volumes 1 to 4 third series. Volumes 1 to 8 first series, and volume 4 third series, unbound. All the others half-bound, and all good as new. E. C., 1 Worcester Terrace, Bath.

Carriage paid to London. MacLise's "Surgical Anatomy," 35 fine plates, 35s.; "Pharmacopœia Londinensis," 1851, 3s.; "Acton on Venereal Diseases," 2 vols., atlas, coloured plates; Pritchard's "Infusoria," 5s. 6d.; Arnott's "Physics," 2 vols., 10s. (published 31s. 6d.); Vogel's "Pathological Anatomy," "Celsus," Blakeston's "Chest Diseases," Andral's "Pathological Anatomy," Askwell's "Diseases Women," Gregory's "Outlines Chemistry," Works on Hydropathy and Homœopathy; Copland's "Medicines," parts 1 to 13 (part 2 wanting), 10s. 6d., published 3l. 7s. 6d.; Bourguery's "Minor Surgery," 3s. 6d. Chemist, Church Street, Hadleigh, Suffolk.

Marble mortar, 16-inch, new, cost 24s., price 16s.; 18 3-lb. blue shop jars, with gold labels, quite new, 2l.; brass box-end scales, 16-inch, mahogany stand, with drawer, good condition, 25s.; another set, 12-inch stand, 15s.; counter case, glazed, with one strong plate, 3 feet 3 inches x 2 feet, 30s.; counter-edge case, 3 feet x 11 inches, 15s.; glass case, 16½ x 10½, 3s. 6d.; 4-hole mahogany cigar case, 7s. 6d.; deal medicine chest, partitioned for 16 1-pint bottles, lock, and handles, 7s. 6d.; 9 1-gallon black tincture bottles, gold labels, 2s. 6d. each, large, 30s.; embossing press, 7s. 6d.; lot new trusses, Maw's, 16s. and 27s. dozen; 30 40-oz. stoppered round labels, as new, 1s. 2d. each; 7 30-oz. ditto, 1s. each; 26 40-oz. round old labels, 10d. each; 20 20-ditto, 7d. each; several window carboys and stands, particulars for a stamp; 4 2-lb. blue enamel snuff jars, 1s. each; 1-lb. twine box, 2s.; perforated zinc window screen, 6 feet 7 inches x 3 feet 2 inches, painted frame, 10s.; chest Amboyna cloves, 1s. 4d. in parcels; two stout mahogany frames, 11 feet x 1 foot, with deal backs, nearly new, been used for glass facia advertisements round shop, price 12s. each. Floyd, Bury St. Edmunds.

#### WANTED.

Will give 24 3-gr. pill machine for 4-gr. Cooper, Keighley.

Large show crystals for shop window. 27/236.

A soda-water stand, one of Maw's preferred. Address, A. Rogers, Newmarket.

Sutton's "Volumetric Analysis," Culpepper's "English Herbals," Paris "Codex," Prussian "Pharmacopœia." 28/236.

A second-hand Pindar's rotary pill machine. Leonard Sinnock & Co., Nelson Street, Bristol.

A refrigerator or ice box; also an invalid chair or lift, adapted for carrying an invalid upstairs. State size, condition, and price. F. Clifton, 34 Coru Market, Derby.

Barber's "Pocket Pharmacopœia," Squire's "Companion to Pharmacopœia," Redwood's "Supplement to Pharmacopœia." State lowest price and condition. Also 1 doz. blue plug stoppered syrup bottles. W. F. South, Normanton, Alfreton.

THE FRENCH GOVERNMENT presented to the National Assembly, on March 28 last, a proposal which accords to M. Pasteur an annual pension of 12,000 francs as a national acknowledgment of his valuable labours on the preservation of wine, on the manufacture of beer and vinegar, and on the silk industry. All friends of science will applaud the initiative of the Minister of Public Instruction.



At a temperature of over 90 degrees in the shade, it is little wonder if trade should take its rest for awhile. Excitement under such conditions is little short of madness; consequently it happens that the materials for a report are necessarily meagre. The Board of Trade returns for June indicate a falling off, as compared with the corresponding month of 1873, of 92,000l. This is better than had been looked for, and it may be noted that chemical products are among the items which have helped to improve the balance. Iron is, as usual, the chief offender.

All the manufacturers seem agreed that a favourable turn has set in for the chemical market. Generally speaking, prices are a shade firmer, and there seems to be a healthy demand. Bleaching powder is scarce, and commands higher prices. Oxalic acid is at present dull, but some contracts are reported for next year at advanced quotations. Citric acid has gone up again, and there seems to be but little hope of a permanent reduction, at least for some time to come. Mr. Ainis' circular (Messina) contains the following paragraph in reference to lemon juice, which is suggestive:—"Prices are bound to keep up, as holders seem to be all of one mind about the future course of this article. Another incident now militates against the probability of low prices, and it is the damage suffered in consequence of the sudden heat by the lemon-trees."

Quicksilver is still quoted at 19l. 15s., though in the course of the month it has been difficult to obtain it even at that generous figure. As an indication of the hard times which chemical manufacturers have been having recently, it may be mentioned that the directors of the Newcastle Chemical Works Company (Limited) have notified that, in consequence of the unremunerative state of the chemical trade, they cannot declare an interim dividend for the first-half of the present year, having had to contend not only with the stagnation of trade, but with a strike among their workmen. They trust that a revival is not far distant, and hope that they may have a more favourable report to give at the close of the twelvemonth. At the corresponding date of 1873 a distribution was made of 7s. 6d. per share, equal to the rate of 12½ per cent. per annum.

The drug markets have not been particularly animated, but a fair general business has been accomplished. Camphor is recovering from its recent depression, and as stocks are not extraordinarily abundant, this is not surprising. Refiners have not seen fit to reduce their prices, except to an almost inappreciable extent, though some of them have doubtless bought some cheap parcels recently. For rhubarb there has lately been quite a brisk competition, and anything good offering has commanded considerably advanced prices. Late arrivals, however, have been of quite an ordinary character. Castor oil has been pressed forward in large quantities, and the market is consequently depressed for the moment. The stock is not large, however, and no permanent change in price will result. If, indeed, it be true, as is reported, that the Italian crop has entirely failed, there is prospect of a modification of price in another direction. Cardamoms are firm, with a good inquiry. Opium is nominally the same as last month, but the tendency is toward firmness. Cinchona barks apparently have not been wanted lately, as holders have had to buy in most of what was offered. Fine samples, however, are readily seized. Olive oil is likely to be cheaper. The crop is so good this year, according to reports from Italy, that a fall is considered certain. Buyers at any rate decline to meet the present quotations. Petroleum is said to be now cheaper than it has been known throughout its history. Demands are still but languid, as all the markets of the world are well stocked. Turpentine is again lower, and presents itself at unusually cheap rates. American spirits have arrived in great abundance. Saltpetre is a shade dearer, and shellac shows signs of improvement.



# Monthly Price Current.

The prices quoted in the following list are those actually obtained in Mining Lane for articles sold in bulk. Our Retail Subscribers must not expect to purchase at these market prices, but they may draw from them useful conclusions respecting the prices at which articles are offered by the Wholesale Firms.

1874.		1873.	
ACIDS—		ACIDS—	
Acetic .....	per lb. 0 4 to 0 4½	Acetic .....	per lb. 0 4½ to 0 0
Citric .....	per lb. 4 2 .. 0 0	Citric .....	per lb. 4 5 .. 0 0
Hydrochloric .....	per cwt. 5 0 .. 7 0	Hydrochloric .....	per cwt. 4 0 .. 7 0
Nitric .....	per lb. 0 5 .. 0 5½	Nitric .....	per lb. 0 5 .. 0 5½
Oxalic .....	per lb. 0 6½ .. 0 0	Oxalic .....	per lb. 0 9 .. 0 9½
Sulphuric .....	per lb. 0 0½ .. 0 1	Sulphuric .....	per lb. 0 0½ .. 0 1
Tartaric crystal ..	per lb. 1 6½ .. 1 7	Tartaric crystal ..	per lb. 1 6½ .. 1 7
powdered ..	per lb. 1 7 .. 1 7½	powdered ..	per lb. 1 7 .. 0 0
ANTIMONY ore .....	per ton 200 0 .. 240 0	ANTIMONY ore .....	per ton 230 0 .. 0 0
crude ..	per cwt. 0 0 .. 0 0	crude ..	per cwt. 0 0 .. 0 0
regulus ..	per lb. 0 0 .. 0 0	regulus ..	per lb. 0 0 .. 0 0
star ..	per lb. 47 6 .. 48 0	star ..	per lb. 60 0 .. 61 0
ARSENIC, lump .....	per lb. 20 6 .. 0 0	ARSENIC, lump .....	per lb. 20 6 .. 0 0
powder ..	per lb. 10 0 .. 0 0	powder ..	per lb. 10 3 .. 0 0
BRIMSTONE, rough ..	per ton 127 6 .. 145 0	BRIMSTONE, rough ..	per ton 125 0 .. 145 0
roll ..	per cwt. 9 9 .. 10 0	roll ..	per cwt. 10 0 .. 0 0
flour ..	per lb. 11 6 .. 12 6	flour ..	per lb. 11 6 .. 12 6
IODINE, dry .....	per oz. 0 10½ .. 0 11	IODINE, dry .....	per oz. 1 6 .. 1 7
IVORY BLACK, dry ..	per cwt. 8 6 .. 0 0	IVORY BLACK, dry ..	per cwt. 8 6 .. 0 0
MAGNESIA, calcined ..	per lb. 1 6 .. 0 0	MAGNESIA, calcined ..	per lb. 1 6 .. 0 0
MERCURY .....	per bottle 395 0 .. 0 0	MERCURY .....	per bottle 290 0 .. 0 0
MINTUM, red ..	per cwt. 25 0 .. 25 3	MINTUM, red ..	per cwt. 25 6 .. 0 0
orange ..	per lb. 37 0 .. 0 0	orange ..	per lb. 35 6 .. 0 0
PRECIPITATE, red ..	per lb. 6 2 .. 0 0	PRECIPITATE, red ..	per lb. 4 8 .. 0 0
white ..	per lb. 6 1 .. 0 0	white ..	per lb. 4 7 .. 0 0
PRUSSIAN BLUE ..	per lb. 0 0 .. 0 0	PRUSSIAN BLUE ..	per lb. 0 0 .. 0 0
SALTS—		SALTS—	
Alum .....	per ton 170 0 .. 180 0	Alum .....	per ton 162 6 .. 165 0
powder ..	per lb. 192 6 .. 195 0	powder ..	per lb. 182 6 .. 185 0
Ammonia:		Ammonia:	
Carbonate .....	per lb. 0 7 .. 0 7½	Carbonate .....	per lb. 0 7½ .. 0 7½
Hydrochlorate, crude,		Hydrochlorate, crude,	
white ..	per ton 650 0 .. 0 0	white ..	per ton 640 0 .. 0 0
British (see Sal Am.)		British (see Sal Am.)	
Sulphate .....	per ton 330 0 .. 350 0	Sulphate .....	per ton 350 0 .. 0 0
Argol, Cape .....	per cwt. 87 6 .. 97 6	Argol, Cape .....	per cwt. 87 0 .. 96 0
Red ..	per lb. 76 0 .. 82 6	Red ..	per lb. 75 0 .. 85 0
Oporto, red ..	per lb. 28 0 .. 32 0	Oporto, red ..	per lb. 32 0 .. 32 6
Sicily ..	per lb. 52 6 .. 57 6	Sicily ..	per lb. 60 0 .. 65 0
Ashes (see Potash and Soda)		Ashes (see Potash and Soda)	
Bleaching powd. ....	per cwt. 11 9 .. 12 0	Bleaching powd. ....	per cwt. 12 0 .. 12 3
Borax, crude ..	per lb. 40 0 .. 85 0	Borax, crude ..	per lb. 55 0 .. 75 0
British refnd. ....	per lb. 75 0 .. 0 0	British refnd. ....	per lb. 105 0 .. 0 0
Calomel .....	per lb. 5 9 .. 0 0	Calomel .....	per lb. 4 3 .. 0 0
Copper:		Copper:	
Sulphate .....	per cwt. 26 0 .. 27 0	Sulphate .....	per cwt. 30 6 .. 31 0
Copperas, green ..	per ton 65 0 .. 70 0	Copperas, green ..	per ton 60 0 .. 62 6
Corrosive Sublimat. p. lb.	5 0 .. 0 0	Corrosive Sublimat. p. lb.	3 0 .. 0 0
Cr. Tartar, French, p. cwt.	110 0 .. 111 0	Cr. Tartar, French, p. cwt.	106 0 .. 107 6
brown ..	per lb. 95 0 .. 100 0	brown ..	per lb. 87 6 .. 95 0
Epsom Salts .....	per cwt. 5 9 .. 6 3	Epsom Salts .....	per cwt. 5 9 .. 6 3
Glauber Salts .....	per lb. 4 6 .. 5 6	Glauber Salts .....	per lb. 7 6 .. 0 0
Lime:		Lime:	
Acetate, white, per cwt.	14 0 .. 21 0	Acetate, white, per cwt.	16 0 .. 22 0
Magnesia: Carbonate ..	per lb. 42 6 .. 45 0	Magnesia: Carbonate ..	per lb. 42 6 .. 45 0
Potash:		Potash:	
Bichromate .....	per lb. 0 6½ .. 0 0	Bichromate .....	per lb. 0 8½ .. 0 0
Carbonate:		Carbonate:	
Potashes, Canada, 1st		Potashes, Canada, 1st	
sort .....	per cwt. 35 0 .. 35 6	sort .....	per cwt. 37 0 .. 37 6
Pearlashes, Canada, 1st		Pearlashes, Canada, 1st	
sort .....	per cwt. 0 0 .. 0 0	sort .....	per cwt. 50 0 .. 51 0
Chlorate .....	per lb. 0 10½ .. 0 11½	Chlorate .....	per lb. 1 4½ .. 0 0
Prussiate .....	per lb. 0 11½ .. 1 0	Prussiate .....	per lb. 1 4 .. 0 0
red ..	per lb. 2 10 .. 2 11	red ..	per lb. 3 1 .. 0 0
Tartrate (see Argol and Cream of Tartar)		Tartrate (see Argol and Cream of Tartar)	
Potassium:		Potassium:	
Chloride .....	per cwt. 7 0 .. 0 0	Chloride .....	per cwt. 8 6 .. 0 0
Iodide .....	per lb. 13 0 .. 13 6	Iodide .....	per lb. 22 0 .. 0 0
Quinine:		Quinine:	
Sulphate, British, in		Sulphate, British, in	
bottles .....	per oz. 8 0 .. 0 0	bottles .....	per oz. 8 3 .. 0 0
Sulphate, French ..	per lb. 7 9 .. 0 0	Sulphate, French ..	per lb. 8 0 .. 0 0
Sal Acetos .....	per lb. 0 10 .. 0 10½	Sal Acetos .....	per lb. 1 1½ .. 0 0
Sal Ammoniac, Brit. cwt.	44 0 .. 45 0	Sal Ammoniac, Brit. cwt.	44 0 .. 45 0
Saltpetre:		Saltpetre:	
Bengal, 6 per cent. or		Bengal, 6 per cent. or	
under .....	per cwt. 20 6 .. 22 0	under .....	per cwt. 25 3 .. 26 0
Bongal, over 6 per cent.		Bongal, over 6 per cent.	
per cwt. 18 6 .. 20 6		per cwt. 22 6 .. 25 0	
British, refined ..	per lb. 25 6 .. 26 6	British, refined ..	per lb. 29 6 .. 31 0
Soda: Bicarbonate, p. cwt.	15 9 .. 16 0	Soda: Bicarbonate, p. cwt.	18 3 .. 0 0
Carbonate:		Carbonate:	
Soda Ash .....	per deg. 0 2½ .. 0 0	Soda Ash .....	per deg. 0 2½ .. 0 2½
Soda Crystals per ton	112 6 .. 115 6	Soda Crystals per ton	125 0 .. 127 6
Hyposulphite, per cwt.	0 0 .. 0 0	Hyposulphite, per cwt.	15 6 .. 16 0
Nitrate .....	per cwt. 11 3 .. 11 0	Nitrate .....	per cwt. 15 0 .. 15 3
SUGAR OF LEAD, White cwt.	47 0 .. 48 0	SUGAR OF LEAD, White cwt.	45 6 .. 0 0
SUGAR OF LEAD, Brown, cwt.	32 6 .. 33 0	SUGAR OF LEAD, Brown, cwt.	30 0 .. 0 0
SULPHUR (see Brimstone)		SULPHUR (see Brimstone)	

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VERMIGRIS .....	per lb. 1 1½ to 1 6	VERMIGRIS .....	per lb. 1 1½ to 1 2
VERMILION, English ..	per lb. 5 4 .. 0 0	VERMILION, English ..	per lb. 4 4 .. 4 6
China ..	per lb. 5 4 .. 5 6	China ..	per lb. 4 2 .. 4 3
DRUGS.		DRUGS.	
ALOES, Hepatic .....	per cwt. 80 0 .. 200 0	ALOES, Hepatic .....	per cwt. 80 0 .. 200 0
Secotrine ..	per lb. 102 6 .. 240 0	Secotrine ..	per lb. 110 0 .. 320 0
Cape, good ..	per lb. 38 0 .. 40 0	Cape, good ..	per lb. 30 0 .. 34 0
Inferior ..	per lb. 30 0 .. 37 0	Inferior ..	per lb. 20 0 .. 29 0
Barbadoes ..	per lb. 65 0 .. 190 0	Barbadoes ..	per lb. 70 0 .. 190 0
AMBERGRIS, grey .....	per oz. 0 0 .. 0 0	AMBERGRIS, grey .....	per oz. 30 0 .. 39 0
BALSAM—		BALSAM—	
Canada .....	per lb. 2 3 .. 0 0	Canada .....	per lb. 3 6 .. 0 0
Capivi .....	per lb. 2 8 .. 2 9	Capivi .....	per lb. 2 6 .. 2 9
Peru .....	per lb. 8 5 .. 8 1	Peru .....	per lb. 9 0 .. 9 3
Tolu .....	per lb. 2 9 .. 3 0	Tolu .....	per lb. 1 11 .. 2 0
BARKS—		BARKS—	
Canella alba .....	per cwt. 16 0 .. 27 0	Canella alba .....	per cwt. 15 0 .. 25 0
Cascarilla .....	per lb. 22 0 .. 31 6	Cascarilla .....	per lb. 26 0 .. 35 0
Peru, crown & grey ..	per lb. 0 10 .. 2 7	Peru, crown & grey ..	per lb. 1 0 .. 2 10
Calikaya, flat ..	per lb. 2 10 .. 4 2	Calikaya, flat ..	per lb. 5 0 .. 3 6
quill ..	per lb. 2 8 .. 4 2	quill ..	per lb. 3 4 .. 4 0
Carthageana ..	per lb. 0 8 .. 2 0	Carthageana ..	per lb. 0 10 .. 1 8
E. I. ..	per lb. 0 6 .. 3 9	E. I. ..	per lb. 0 4 .. 4 6
Pitayo ..	per lb. 0 4 .. 2 0	Pitayo ..	per lb. 0 4 .. 2 0
Red ..	per lb. 1 7 .. 8 10	Red ..	per lb. 1 10 .. 6 0
Buchu Leaves ..	per lb. 0 2 .. 1 0	Buchu Leaves ..	per lb. 0 2 .. 1 0
CAMPOR, China .....	per cwt. 67 6 .. 68 0	CAMPOR, China .....	per cwt. 75 0 .. 76 0
Japan ..	per lb. 72 6 .. 0 0	Japan ..	per lb. 82 6 .. 0 0
Refin. Eng. per lb.	1 2 .. 0 0	Refin. Eng. per lb.	1 2 .. 0 0
CANTHARIDES .....	per lb. 2 3 .. 5 0	CANTHARIDES .....	per lb. 6 0 .. 6 6
CHAMOMILE FLOWERS p. cwt.	30 0 .. 68 0	CHAMOMILE FLOWERS p. cwt.	45 0 .. 75 0
CASTOREUM .....	per lb. 4 0 .. 20 0	CASTOREUM .....	per lb. 6 0 .. 20 0
DRAGON'S BLOOD, lp. p. cwt.	105 0 .. 255 0	DRAGON'S BLOOD, lp. p. cwt.	105 0 .. 240 0
FRUITS AND SEEDS (see also Seeds and Spices).		FRUITS AND SEEDS (see also Seeds and Spices).	
Anise, China Star per cwt.	113 6 .. 120 0	Anise, China Star per cwt.	120 0 .. 127 6
Spanish, &c. ....	per lb. 12 0 .. 27 3	Spanish, &c. ....	per lb. 20 0 .. 42 0
Beans, Tonquin .....	per lb. 1 6 .. 2 4	Beans, Tonquin .....	per lb. 3 7 .. 3 9
Cardamoms, Malabar		Cardamoms, Malabar	
good ..	per lb. 4 3 .. 4 8	good ..	per lb. 4 6 .. 7 6
inferior ..	per lb. 2 0 .. 4 0	inferior ..	per lb. 3 3 .. 4 3
Madras ..	per lb. 2 0 .. 3 6	Madras ..	per lb. 1 2 .. 4 6
Ceylon ..	per lb. 2 6 .. 4 6	Ceylon ..	per lb. 4 9 .. 5 0
Cassia Fistula .....	per cwt. 12 0 .. 18 0	Cassia Fistula .....	per cwt. 10 0 .. 20 0
Castor Seeds ..	per lb. 5 0 .. 10 0	Castor Seeds ..	per lb. 5 0 .. 10 0
Cocculus Indicus ..	per lb. 15 6 .. 17 0	Cocculus Indicus ..	per lb. 16 0 .. 21 0
Colocynth, apple ..	per lb. 0 4 .. 0 10	Colocynth, apple ..	per lb. 0 4 .. 0 9
Croton Seeds .....	per cwt. 42 0 .. 44 0	Croton Seeds .....	per cwt. 52 0 .. 55 0
Cubebs ..	per lb. 24 0 .. 25 0	Cubebs ..	per lb. 33 0 .. 35 0
Cumin ..	per lb. 15 0 .. 22 0	Cumin ..	per lb. 25 0 .. 26 0
Dividivi ..	per lb. 11 0 .. 15 0	Dividivi ..	per lb. 12 0 .. 15 0
Fenugreek ..	per lb. 8 0 .. 16 0	Fenugreek ..	per lb. 9 0 .. 23 0
Guinea Grains ..	per lb. 25 0 .. 26 0	Guinea Grains ..	per lb. 25 6 .. 26 6
Juniper Berries ..	per lb. 9 0 .. 10 6	Juniper Berries ..	per lb. 9 0 .. 10 6
Nux Vomica ..	per lb. 7 6 .. 15 0	Nux Vomica ..	per lb. 13 0 .. 17 6
Tamarinds, East India ..	per lb. 10 0 .. 15 0	Tamarinds, East India ..	per lb. 5 6 .. 18 0
West India, new ..	per lb. 14 0 .. 28 0	West India, new ..	per lb. 38 0 .. 42 0
Vanilla, large .....	per lb. 68 0 .. 86 0	Vanilla, large .....	per lb. 70 0 .. 80 0
inferior ..	per lb. 45 0 .. 67 0	inferior ..	per lb. 35 0 .. 67 0
Wormseed ..	per cwt. 0 0 .. 0 0	Wormseed ..	per cwt. 0 0 .. 0 0
GINGER, Preserved, per lb.	0 5½ .. 0 8	GINGER, Preserved, per lb.	0 6 .. 0 9
HONEY Chili .....	per cwt. 32 0 .. 46 0	HONEY Chili .....	per cwt. 28 0 .. 40 0
Jamaica ..	per lb. 40 0 .. 44 0	Jamaica ..	per lb. 35 0 .. 40 0
Australian ..	per lb. 38 0 .. 48 0	Australian ..	per lb. 20 0 .. 30 0
IPECACUANHA .....	per lb. 3 3 .. 3 6	IPECACUANHA .....	per lb. 3 6 .. 4 0
LSINGLASS, Brazil ..	per lb. 3 0 .. 4 11	LSINGLASS, Brazil ..	per lb. 3 2 .. 5 0
Tongue sort ..	per lb. 3 3 .. 5 3	Tongue sort ..	per lb. 3 6 .. 5 5
East India ..	per lb. 1 6 .. 5 0	East India ..	per lb. 2 0 .. 4 4
West India ..	per lb. 4 6 .. 4 11	West India ..	per lb. 4 6 .. 4 10
Russ. long staple	per lb. 8 6 .. 13 0	Russ. long staple	per lb. 8 0 .. 12 6
inferior ..	per lb. 4 0 .. 8 0	inferior ..	per lb. 3 6 .. 7 6
Simovia ..	per lb. 3 3 .. 5 0	Simovia ..	per lb. 2 6 .. 4 6
JALAP, good .....	per lb. 0 8 .. 0 9	JALAP, good .....	per lb. 1 6 .. 2 0
infer. & stems ..	per lb. 0 6½ .. 0 9	infer. & stems ..	per lb. 1 2 .. 1 4
LEMON JUICE .....	per degree 0 2½ .. 0 0	LEMON JUICE .....	per degree 0 2½ .. 0 0
LIME JUICE .....	per gall. 2 4 .. 2 6	LIME JUICE .....	per gall. 1 11 .. 2 4
LIQUORICE, Spanish per cwt.	40 0 .. 70 0	LIQUORICE, Spanish per cwt.	60 0 .. 90 0
Liquorice Root ..	per lb. 11 0 .. 16 0	Liquorice Root ..	per lb. 10 0 .. 15 0
MANNA, flaky .....	per lb. 2 6 .. 3 0	MANNA, flaky .....	per lb. 2 6 .. 3 3
small ..	per lb. 1 2 .. 1 5	small ..	per lb. 1 4 .. 1 6
MUSK, Pod .....	per oz. 20 0 .. 43 0	MUSK, Pod .....	per oz. 20 0 .. 43 0
Grain ..	per lb. 45 0 .. 50 0	Grain ..	per lb. 55 0 .. 58 0
OILS (see also separate list)		OILS (see also separate list)	
Almond, expressed per lb.	0 10½ .. 0 0	Almond, expressed per lb.	1 0 .. 0 0
Castor, 1st palo ..	per lb. 0 5½ .. 6 0	Castor, 1st palo ..	per lb. 0 6 .. 0 0
second ..	per lb. 0 4½ .. 0 5	second ..	per lb. 0 5½ .. 0 5½
infer. & dark ..	per lb. 0 4 .. 0 4½	infer. & dark ..	per lb. 0 4½ .. 0 5
Bombay (in casks)	per lb. 0 4½ .. 0 0	Bombay (in casks)	per lb. 0 4½ .. 0 0
Cod Liver .....	per gall. 3 10 .. 6 3	Cod Liver .....	per gall. 4 0 .. 6 6
Croton .....	per oz. 0 3 .. 0 4	Croton .....	per oz. 0 3 .. 0 4
Essential Oils:		Essential Oils:	
Almond .....	per lb. 25 0 .. 0 0	Almond .....	per lb. 30 0 .. 0 0
Anise-seed ..	per lb. 8 1 .. 8 3	Anise-seed ..	per lb. 10 3 .. 10 6
Bay ..	per cwt. 0 0 .. 0 0	Bay ..	per cwt. 65 0 .. 70 0
Bergamot .....	per lb. 10 0 .. 23 0	Bergamot .....	per lb. 9 0 .. 20 0
Cajeput, (in bond) per oz.	2 3 .. 2 5	Cajeput, (in bond) per oz.	2 5 .. 0 0
Caraway .....	per lb. 5 3 .. 6 0	Caraway .....	per lb. 5 6 .. 6 3
Cassia ..	per lb. 4 5 .. 4 6	Cassia ..	per lb. 6 0 .. 6 3
Cinnamon .....	per oz. 0 8 .. 7 6	Cinnamon .....	per oz. 0 8 .. 3 6
Cinnamon-leaf ..	per lb. 0 2½ .. 0 2½	Cinnamon-leaf ..	per lb. 0 3 .. 0 3½
Citronelle ..	per lb. 0 1½ .. 0 0	Citronelle ..	per lb. 0 1½ .. 0 2
Clove .....	per lb. 9 0 .. 0 0	Clove .....	per lb. 5 0 .. 5 6
Juniper ..	per lb. 1 10 .. 2 0	Juniper ..	per lb. 1 3 .. 2 4
Lavender .....	per lb. 1 10 .. 5 0	Lavender .....	per lb. 2 9 .. 5 6
Lemon ..	per lb. 7 0 .. 14 0	Lemon ..	per lb. 10 0 .. 19 0



1874.				1873.				1874.				1873.			
Essential Oils, continued:—								Oils, continued:—							
	s.	d.		s.	d.				£	s.		£	s.		
Lemongrass . . . . .	0	2½	0	0	3½	0	6	WHALE, South Sea, pale, per ton	20	10	to	31	0	36	0
Neroli . . . . .	0	4	0	0	5	0	3½	yellow "	30	0		0	0	35	0
Nutmeg . . . . .	0	7½	0	0	7½	0	8½	brown "	29	0		0	0	30	0
Orange . . . . .	8	0	10	0	7	0	12	East India, Fish "	25	0	25	10	27	0	
Otto of Roses . . . . .	15	0	22	0	18	0	27	OLIVE, Galipoli . . . . .	45	0		0	0	42	0
Patchouli . . . . .	2	9	4	0	3	9	4	Trieste . . . . .	44	0		0	0	39	0
Peppermint:								Levant . . . . .	38	0	39	0	37	10	
American . . . . .	20	6	22	6	15	3	16	Mogador . . . . .	38	0		0	0	37	0
English . . . . .	29	0	32	0	29	0	34	Spanish . . . . .	41	0		0	0	39	0
Rosemary . . . . .	1	4	1	10	1	0	1	Sicily . . . . .	40	10	41	0	39	0	
Sassafras . . . . .	2	3	3	0	2	6	3	COCOANUT, Cochinn. . . . .	39	0	40	0	39	0	
Spearmint . . . . .	6	0	18	0	6	0	20	Ceylon . . . . .	35	0	35	5	33	10	
Thyme . . . . .	1	9	2	0	1	10	1	Sydney . . . . .	30	0	35	10	28	0	
Mace, expressed . . . . .	0	3	0	3½	0	1½	0	GROUND NUT AND GINGELLY:							
OPIMUM, Turkey . . . . .	30	0	32	0	24	0	25	Bombay . . . . .	0	0		0	0	0	0
inferior . . . . .	14	0	28	0	12	0	20	Madras . . . . .	35	10	36	0	36	10	
QUASSIA (bitter wood) per ton	70	0	85	0	90	0	100	PALM, fine . . . . .	37	0		0	0	39	0
RUTBARK, China, good and								LINSEED . . . . .	28	15	29	0	34	0	
fine . . . . .	3	9	6	3	2	9	5	RAPESEED, English, pale . . . . .	33	0		0	0	37	0
Good, mid. to ord. "	1	0	3	7	0	10	2	brown . . . . .	31	0		0	0	35	0
Dutch trimmed . . . . .	0	0	0	0	8	0	10	Foreign, pale . . . . .	0	0		0	0	39	0
Russian . . . . .	0	0	0	0	0	0	0	brown . . . . .	0	0		0	0	0	0
ROOTS—Caiumba . . . . .	15	3	16	0	15	0	19	COTTONSEED . . . . .	26	10	26	15	28	0	
China . . . . .	18	0	22	0	16	0	28	LARD . . . . .	53	0	54	0	45	0	
Galangal . . . . .	23	0	24	0	18	0	22	TALLOW . . . . .	26	0	32	0	31	0	
Gentian . . . . .	17	0	19	0	18	0	0	TURPENTINE, American, cks. . . . .	25	0	26	0	34	0	
Hellebore . . . . .	30	0	33	0	30	0	33	French . . . . .	27	0		0	0	0	0
Orris . . . . .	30	0	70	0	36	0	80	PETROLEUM, Crude . . . . .	0	0		0	0	0	0
Pellitory . . . . .	38	0	39	0	38	0	39		s.	d.		s.	d.		
Pink . . . . .	1	0	1	3	0	10	1	refined, per gall. . . . .	0	9½		0	10½	1	1½
Rhatany . . . . .	0	5	0	11	0	6	1	Spirit . . . . .	0	9		0	0	0	8½
Seneca . . . . .	3	0	3	6	4	6	5	SEEDS.							
Snake . . . . .	1	4	1	9	1	2	1	CANARY . . . . .	70	0	80	0	46	0	
SAFFRON, Spanish . . . . .	22	0	27	0	20	0	25	CARAWAY, English per ewt. . . . .	0	0		0	0	40	0
SALEP . . . . .	170	0	200	0	170	0	180	German, &c. . . . .	0	0		0	0	23	0
SARSAPARILLA, Lima per lb. . . . .	0	6	0	9	0	6	0	CORLANDER . . . . .	10	0	13	0	13	0	
Para . . . . .	1	0	1	3	1	3	0	HEMP . . . . .	40	0	42	0	40	0	
Honduras . . . . .	1	3	1	7	1	1	1	LINSEED, English per qr. . . . .	56	0	66	0	50	0	
Jamaica . . . . .	1	5	2	3	2	0	2	Black Sea & Azof . . . . .	59	0	62	0	60	0	
SASSAFRAS . . . . .	13	0	15	0	0	0	0	Calcutta . . . . .	60	0		0	0	64	0
SCAMMONY, Virgin . . . . .	25	0	30	0	26	0	31	Bombay . . . . .	61	0		0	0	65	6
second & ordinary . . . . .	8	0	24	0	14	0	25	St. Petrsbrg. . . . .	56	0	57	0	60	0	
SENNA, Bombay . . . . .	0	1	0	5	0	2	0	Mustard, brown . . . . .	10	0	15	0	13	0	
Tinnivelly . . . . .	0	1½	1	0	0	1½	0	white . . . . .	8	0	11	0	8	0	
Alexandria . . . . .	0	3½	1	5	0	3	1	POPPY, East India, per qr. . . . .	55	6		0	0	61	0
SPERMACEETI, refined . . . . .	1	3	1	4	1	6	0	SPICES.							
American . . . . .	1	0	1	1	1	2	1	CASSIA LIGNEA . . . . .	63	0	70	0	80	0	
SQUILLS . . . . .	0	1½	0	2	0	1½	0	Vera . . . . .	24	0	60	0	27	0	
								Bnds . . . . .	115	0	117	6	117	6	
1. AMMONIAC drop . . . . .	£	s.	£	s.	£	s.	£	CINNAMON, Ceylon:							
lump . . . . .	3	0	6	0	4	0	6	1st quality . . . . .	2	4	4	0	1	8	3
ANIDI, fine washed . . . . .	11	15	12	10	12	0	14	2nd do. . . . .	1	9	3	5	1	6	3
bold scraped . . . . .	11	0	11	10	10	0	11	3rd do. . . . .	1	3	3	0	1	2	2
sorts . . . . .	6	0	10	10	6	0	11	Tellicherry . . . . .	3	3	3	5	2	7	3
dark . . . . .	5	0	6	0	4	0	5	CLOVES, Penang . . . . .	1	10	1	11	1	0	1
ARABIC, E.I., fine								Amboyne . . . . .	1	3	1	4	0	7½	0
pale picked . . . . .	3	0	3	12	3	0	3	Zanzibar . . . . .	1	3	1	3½	0	8	8½
sorts, mid. to fin. . . . .	1	17	2	18	2	10	3	GINGER, Jam., fine per ewt. . . . .	105	0	240	0	100	0	
garblings . . . . .	1	2	1	10	1	0	3	Ord. to good . . . . .	60	0	100	0	54	0	
TURKEY, pick. gd. to fin. . . . .	7	10	11	0	7	10	11	African . . . . .	48	6	50	6	50	0	
second & inf. . . . .	4	0	7	5	4	0	6	Bengal . . . . .	47	6	54	0	45	0	
in sorts . . . . .	2	5	3	15	2	0	3	Malabar . . . . .	46	0	0	0	44	0	
Gedda . . . . .	1	0	1	16	1	0	2	Cochin . . . . .	70	0	110	0	54	0	
BARBARY, white . . . . .	1	6	2	3	2	10	2	PEPPER, Blk, Malabar, per lb. . . . .	0	6½	0	6½	0	7½	0
brown . . . . .	1	5	1	16	1	10	2	Singapore . . . . .	0	6½	0	6½	0	7½	0
AUSTRALIAN . . . . .	1	15	2	8	1	7	2	White Tellicherry . . . . .	1	6	1	10	2	0	0
ASSAFETIDA, cm. to fin. . . . .	1	7	3	6	1	3	3	Cayenne . . . . .	1	3	1	8	1	0	1
BENJAMIN, 1st & 2nd . . . . .	12	0	28	0	9	0	24	MACE, 1st quality . . . . .	3	2	3	8	3	6	4
Sumatra 1st & 2nd . . . . .	7	0	10	0	7	10	11	2nd and inferior . . . . .	2	0	3	1	3	0	3
3rd . . . . .	3	5	4	0	3	0	4	NUTMEGS, 78 to 60 to lb. . . . .	3	6	4	5	3	2	4
COPAL, Angola red . . . . .	5	10	5	15	6	0	15	90 to 80 . . . . .	3	4	3	5	2	11	3
Benguela . . . . .	3	15	5	0	5	10	15	132 to 95 . . . . .	2	11	3	3	2	6	2
	s.	d.	s.	d.	s.	d.		PIMENTA . . . . .	0	3		0	3½	0	2½
Sierra Leone, per lb. . . . .	0	4½	0	10½	0	3½	0	VARIOUS PRODUCTS.							
Manilla . . . . .	9	0	18	0	13	0	26	COCUINEAL—							
DAMMAR, pale . . . . .	45	0	50	0	48	0	52	Honduras, black . . . . .	2	1	3	0	2	3	3
Singapore . . . . .	44	6	50	0	45	0	50	silver . . . . .	2	0	2	4	2	2	2
EUPHORBIA . . . . .	11	0	15	0	11	0	15	pasty . . . . .	1	9	1	11	2	0	2
GALBANUM . . . . .	1	6	2	0	1	6	2	Mexican, black . . . . .	1	9	2	0	2	2	2
GAMBAGE, pkd. pipe per ewt. . . . .	180	0	280	0	220	0	250	silver . . . . .	1	9	1	10	2	2	2
GUAIACUM . . . . .	1	0	2	5	0	8	2	Teneriffe, black . . . . .	2	0	3	8	2	2	3
KINO . . . . .	30	0	75	0	50	0	85	silver . . . . .							





**N. P.**—The Persian Insect Powder, which is largely used, especially on the Continent, for the destruction of vermin, is simply the *Pyrethrum rosam*, or, red-flowered pyrethrum.

**Dens.**—The following is recommended by a good dentist as an admirable amalgam for stopping teeth:—Dissolve four ounces of copper sulphate in sixteen ounces of distilled water; add to the solution a few pieces of zinc, and let it stand until the water is colourless; then take out the zinc, strain the liquid, and add to the precipitate formed sufficient dilute hydrochloric acid to cover it; let it stand for three or four minutes, and then add an equal bulk of mercury; beat the whole in a mortar till an amalgam is formed, then wash in distilled water and press out superfluous mercury through a piece of silk. Then cut into squares and set aside in a warm place to harden.

**A. H. S.**—To distinguish benzole from benzine, add a small piece of pitch, which is readily and completely soluble in coal-tar benzole, but scarcely at all affected by benzine petroleum spirit.

**Alumina.**—The quickest and most easy method of detecting alum in bread is that devised by Mr. Horsley. It is applied as follows:—An alcoholic solution of logwood is obtained by digesting half an ounce of logwood in 10 ounces methylated spirit for eight hours, and filtering. A saturated aqueous solution of ammonium carbonate is also prepared. A teaspoonful of each of these solutions is then diluted with about a wineglassful of water, and a thick slice of the crumb of the suspected bread soaked in the liquid till it is thoroughly saturated, and then removed to a plate to drain. If any alum be present, the bread, on cooling, acquires a deep blue colour; but if pure the pink colour of the logwood fades. We have found this test capable of detecting very minute traces of alum, and exceedingly satisfactory in its working.

**Student.**—The readiest method of preparing hydrogen dioxide is to add some barium peroxide to a dilute and well cooled solution of hydrofluoric acid in a platinum dish. Insoluble barium fluoride is precipitated, and hydrogen dioxide passes into solution. Concentrated hydrogen dioxide has a strong bitter taste, similar to that of tartar emetic; it whitens the tongue and thickens the saliva, and powerfully irritates the skin when placed in contact with it.

**T. A. B.**—The storax of classical fame was obtained, according to Hanbury, from *Styrax officinale*, a native of Greece and Asia Minor. This variety has now entirely disappeared from commerce, our liquid storax being the produce of *Liquidambar orientale*.

**H. B.**—The best way of dispensing Tinct. Cannabis Indicæ is to triturate it first with a little mucilage, and then gradually dilute with the water. By this means the separation of the resin is avoided.

**Chemicus.**—It is often very difficult to remove old deposits of organic matter from porcelain crucibles, beakers, &c. A good plan is to cover the marks with strong sulphuric acid, and then sprinkle powdered potassium bichromate over them, and place the utensil in a warm place. By this means oxidation is effected, and the stains completely removed.

**Bottled Oil.** so-called, is linseed oil which has been heated in contact with black oxide of manganese, which greatly increases its drying property. When linseed oil is subjected to a high temperature it is converted into a dark tenacious mass. This, mixed with lampblack, constitutes printers' ink.

**R. J. R.**—There are, unfortunately, at the present time, no less than three distinct methods in use for the estimation of anthracene, and each gives a widely different result. The first, devised by Dr. Gessert, consists in treating the crude substance with boiling alcohol (sp. gr. 1.25), filtering, washing the insoluble matter with more alcohol, and drying at 100° C., till the weight is constant. The melting point of this residue is then carefully ascertained by means of a paraffine or ozokerit bath, 190° being the minimum limit. As an improvement on this process, bisulphide of carbon was employed as the solvent of impurities. Ten grams of the sample should be shaken with 30 c.c. carbon bisulphide in a wide mouth stoppered bottle, and the mixture, after standing for an hour at 15°, filtered. The insoluble portion is then dried, weighed, and its melting point taken as before. Compared with the alcohol estimation, the bisulphide yields a lower percentage of insoluble matter with a higher melting point; its result is consequently purer anthracene. Neither of these methods, however, approaches in accuracy that of oxidation of the anthracene to anthracinon, a process which in our hands has yielded unexceptionable results, and it is to be regretted that it is not generally adopted as a standard by all manufacturers.

The details of manipulation are as follow:—

Heat 1 gm. of the sample in a flask with 45 c.c. glacial acetic acid, till it gently boils; add gradually at intervals of from 5 to 10 minutes, a solution of 10 grms. chromic acid in 5 c.c. glacial acetic acid and 5 c.c. of water. The flask is adapted with a condenser, to allow the vapour to flow back. About two hours' gentle boiling generally suffices for the conversion of the anthracene (the presence of an excess of chromic acid should be ascertained

by adding a drop of the mixture to a little solution of a lead salt). When the solution has cooled down, add 150 c.c. of water, and set aside for two hours. Light yellow crystals of anthracinon will then separate from the green liquid. Transfer to a wetted filter; wash first with water and then with a very dilute hot solution of potash, until the filtrate is perfectly colourless, and then a second time with water to remove traces of alkali. The residue may then be either dried in an air-bath, detached from the filter, and weighed; or, preferably, washed through the filter into a weighed porcelain dish, and dried over a water bath. If the operation be conducted skilfully, crystals of pure anthracinon are thus obtained, which are of a fine lemon yellow. If any orange red needles are observed they consist of phenanthren, left on the filter owing to insufficient washing with potash. Anthracinon is found to be slightly soluble in the acetic acid, &c., used in the process; but as definite quantities of each substance are employed, this proportion is constant. Thus, in operating upon a gm. of the sample, as directed above, .01 gm. must be added to the weight of anthracinon found, then as anthracene =  $C_{14}H_{10}$  = 178, and anthracinon =  $C_{14}H_8O_2$  = 208—the total  $\times .85577 \times 100$  = percentage of pure anthracene in the crude samples. In ordinary commercial specimens it is always advisable to remove as much of the oil as possible by washing the sample in light petroleum spirit, and then pressing and drying before proceeding with the oxidation.

**C. C.**—We are much obliged for the interest you manifest in our Notes and Queries. May we at the same time venture to suggest that it would reflect none the less credit on yourself, and be decidedly more agreeable to us, if you would kindly expend a little more time and a little less ink on your communications.

**T. F. C.** would be glad if any of our readers could inform him of the makers of the "British Feeding Bottle" referred to by Dr. Meadows in Tanner's "Diseases of Infancy and Childhood."

**C.**, in reply to **J. A. T.**, states that the preparation named in his formula for teething powder is the pulvis antimoniæ of the B. P., and that a reference to the P. L. will explain the apparent inaccuracy.

**M. S.**—We should recommend you to obtain either "Cooley's Toilet and Cosmetic Arts" (Robert Hardwicke), or "The Practice of Perfumery," by R. Jones Owen (Houlston & Sons). We published a considerable number of carefully compiled perfumery formulae in our *Chemist's and Druggist's Diary and Pharmaceutical Text Book* for last year.

**W. A. B.**—(1) Bromide of Quinine:—Dissolve 1 ounce of quinine sulphate in 32 ounces boiling water, and add solution barium bromide until a precipitate ceases to be produced. Filter, and test a portion of the filtrate for excess of barium by acidulating with nitric acid and adding a few drops dilute sulphuric acid. If a precipitate occurs, add a little more quinine sulphate, that the whole of the barium may be decomposed, then filter while warm into a porcelain dish, and evaporate at a gentle heat, until crystallisation begins to set in. Bromide of quinine thus prepared consists of brilliant silky needles, soluble in about 40 parts of cold water. A solution of barium bromide is readily obtained by neutralising hydrobromic acid with barium carbonate.

(2).—We should imagine that you would experience no difficulty in obtaining a situation in the Colonies. Make known your wishes and qualifications by advertisement, and communicate with one or more of the wholesale houses having a foreign connection.

**Theta.**—We are not acquainted with any method which would render lard oil fluid in cold weather, without impairing its quality, except the rather obvious one of melting it. If you are not particular as to its purity, we should recommend you to mix it with rape or cotton-seed oil, which would of course raise the congealing point. Can anyone help *Theta*?

**A. Cleghorn.**—We are obliged for your communication, to which we shall probably recur.

**Guarana.**—The subject you refer to has been in hand for us for some time, but other engagements have interfered with our contributor. We hope to publish something satisfactory shortly.

**Nemo** sends us a specimen of a substance of a starchy nature, which, in appearance, resembles tapioca after it has been soaked in hot water. It has a slightly hot taste, and our correspondent says it makes a sort of ginger beer if put in water with some sugar and ginger for a day or two. It was collected by a sea captain from the rocks in some parts of the world, but **Nemo** does not know where. We are unable to identify the article, but perhaps some reader can aid us from this description.

**G. B.**—The best work we know of to furnish you with the rationale of pharmaceutical processes is Dr. Scovresly-Jackson's "Note-book on Materia Medica, Pharmacology and Therapeutics," second edition, 12s. 6d. (Mackintosh & Stewart). For more detailed information on some of the subjects you might, with advantage, consult Bentley & Redwood's "Materia Medica" (Longmans, Green & Co., 25s.).

**T. G.**—Carbolic acid is *par excellence* an antiseptic, and will *not*, therefore, cause the teeth to decay.

**Bull.**—We have ourselves obtained very good results in using Jackson's Dyes for grasses, &c. The chief difficulty seems to be in getting the skins to take the colour. You did not state what particular colour you wish to use, but in any case we should recommend you to dip the specimens in an acetate of aluminium mordant, and then immerse them in a solution of a vegetable dye, of the shade required. Brazil wood and endbear will give you crimson; fustic, a brilliant yellow; safflower, rose colour, &c.







